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RECORD

OF

AMERICAN ENTOMOLOGY

FOR THE YEAR 1868.

EDITED BY

A. S. PACKARD, JR., M. D.

SALEM.

NATURALIST'S BOOK AGENCY.

1869.

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R E C O R D

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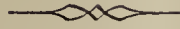
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ERRATA.

Page 4, transfer UROCERIDE to p. 6 to follow TENTHREDINIDE; p. 14, transfer ÆGERIADÆ ending with the word "Texas" (line 1 from bottom) to follow the word "Autumn" on p. 15 line 10 from top; p. 15, line 3 from bottom, after the parenthesis add *rectilinea*.

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INTRODUCTORY.



THE year has been one of very considerable activity among our entomologists, as evinced by the appearance of two monthly journals devoted purely to entomology — the “American Entomologist” and the “Canadian Entomologist” — and the large space devoted to popular entomology in the “American Naturalist.”

There is no doubt but that the collection and description of species in the various groups, and the study of practical or economical entomology, including bee-keeping, will go on making great advances and producing most important results. But it is to the less frequented fields of research that we would draw the attention of entomologists. In the art of bee-keeping Americans are rapidly becoming the most practised and expert hands; but for the science of this art we are indebted to German and French physiologists and embryologists. Our entomologists need to pay more attention to the anatomy, physiology, and to the study of the development of insects, especially as bearing on the subject of parthenogenesis. Another subject is the study of the metamorphoses after the insect has left the egg, and especially the changes undergone in passing from the larval to the pupal, and the

perfect stage. After studying the anatomy and development of the insect, the student will be prepared to investigate the more difficult and crowning theme in entomology — that of the morphology of insects, or their archetypal forms.

The importance of the study of the geographical distribution of insects, and the collection of species in the far West, the Pacific slope of our continent, and the Arctic regions; the collection and the rearing of larvæ, especially those of the Hymenoptera, Diptera, Coleoptera and Neuroptera, to which little attention has been paid in this country, are obvious to all, and scarcely need be insisted on here.

The number of American entomological authors whose articles are referred to in the RECORD is forty-five; while four hundred and two new species of North American insects have been described in American journals during the year 1868.

While the RECORD will be an index to American entomological literature published during the year, it will be issued too early in the season to contain many references to articles relating to American Entomology, published in European journals. These will be given in the yearly RECORD succeeding, which it is hoped will be published more promptly than the present one. European entomologists are therefore requested, should they feel so inclined, to send promptly, whenever it is practicable, separately printed copies of such of their papers as relate to American insects to the Editor, Salem, Mass.

RECORD OF AMERICAN ENTOMOLOGY

FOR THE YEAR 1868.

HYMENOPTERA.

E. T. CRESSON (Trans. Amer. Ent. Soc., i, 137). Catalogue of a small collection of Hymenoptera, made in New Mexico during the summer of 1867.

E. T. CRESSON (Trans. Amer. Ent. Soc., ii, 1). Catalogue of a collection of Hymenoptera, made by Prof. F. Sumichrast, near Cordova, Mexico.

FR. SUMICHRAST (Trans. Amer. Ent. Soc., ii, 39). Notes on the habits of certain species of Mexican Hymenoptera, presented to the American Entomological Society, with remarks on the species by E. Norton.

Prof. Sumichrast thinks that *Labidus* may be the male of *Eciton*, and gives very interesting observations on the habits of the latter genus.

E. T. CRESSON (Trans. Amer. Ent. Soc., Philad., ii, 89). A list of the Ichneumonidæ of North America, with descriptions of new species. Part II.

E. NORTON (Trans. Amer. Ent. Soc., ii, 211). Catalogue of the described Tenthredinidæ and Uroceridæ of N. America. Continued.

E. T. CRESSON (Proc. Boston Soc. Nat. Hist., xii, 165). Descriptions of North American Bees, No. 1.

A. S. PACKARD, Jr. (Proc. Boston Soc. Nat. Hist., xi, 393, with 11 figures). On the Structure of the Ovipositor and homologous parts in the male Insect. An abstract is given in the author's "Guide to the Study of Insects." Relates mostly to the ovipositor of *Bombus*.

E. NORTON (Amer. Nat. ii, 57). Notes on Mexican Ants. An enumeration is given of species collected, with notes on their habits, at Orizaba and Cordova; several new species are enumerated, which are described in the paper next cited.

The author states that "it is a matter of some interest to notice, that among over twenty species, about half of which are undescribed, not one is known in the United States, while several are found in Panama and Brazil. Yet many of them live in the temperate region of Mexico!"

E. NORTON (Proc. Essex Inst., vi, 1868, 1). Description of Mexican Ants noticed in the "American Naturalist," April, 1868.

A. S. PACKARD, Jr. (Amer. Nat., ii, 195, with figures) gives an account of the parasites of the honey bee, mostly occurring in Europe.

W. J. BEAL (Amer. Nat., ii, 330) states that the honey bee gleans after the oriole, which pricks a hole in the flower of the Missouri currant, the honey of which the bee could not otherwise obtain.

APIDÆ.

E. T. CRESSON (Trans. Amer. Ent. Soc., i, 375) describes from New Mexico, *Melissodes menuachus*, also from Colorado; *A. atrifrons*, also from Col.; *A. occidentale*, also taken in Col.; *Perdita? albipennis*, also from Col.; *Nomia? Apacha*, also from Col.; *Nomia Nortonii*, also from Kansas and Col.; and *Andrena mellea*.

E. T. CRESSON (Proc. Bost. Soc. Nat. Hist., xii, 165) describes as new *Colletes valida*, from Mass.; *C. propinqua*, from Mass., Penn., Va., and Illinois; *C. compacta*, from Conn. and Illinois; redescribes *C. inæqualis* Say, from New York, New Jersey, Penn., Illinois and Colorado; *C. Canadensis*, from Canada West; *C. distincta*, from Georgia; *C.*

Americana, from Mass., Delaware, Virginia and Illinois; *C. simulans*, from Colorado; *C. consors*, from Colorado; *C. albescens*, from Illinois; *C. Azteca*, from Orizaba, Mexico; *C. aethiops* from Orizaba; *C. punctipennis*, from Orizaba; *C. submarginata*, from Cuba; *C. Mexicana*, from Orizaba.

A. S. PACKARD, Jr. (Guide, 141, pl. 5, fig. 2) describes the cells of *Osmia pacifica*, and *Augochlora pura* Smith (143, pl. 5, fig. 1).

EDITORS OF THE AMERICAN ENTOMOLOGIST (Messrs. B. D. Walsh and C. V. Riley, i, 9, figs. 4, 5) describe the habits of *Xylocopa Carolina* Linn., and *Anthophora sponosa* Smith.

J. ANGUS (Amer. Nat., ii, 48) notices *Anthrax sinuata* as parasitic on *Xylocopa Virginica*.

A. S. PACKARD, Jr. (Amer. Nat., ii, 52) notes the benefit done to fruit trees by bees in fertilizing the flowers.

VESPIDÆ.

E. T. CRESSON (Trans. Amer. Ent. Soc., i, 375) describes from New Mexico, *Polistes flavus*; *P. Navajoe*, also occurs in Arizona; *Pterochilus Lewisii*; *Odynerus* (Leionotus) *Taos*; and *O. rufinodus*.

A. S. PACKARD, Jr. (Guide, 152, pl. 5, fig. 5, 5a, 6, 6a) notes the mode of beginning their cells by three species of Virginian *Polistes*.

A. S. PACKARD, Jr. (Guide, 149) gives some notes on the larvæ and nest of *Vespa arenaria* Fabr., and (pl. 5, fig. 12) figures the nest of *Odynerus birenimaculatus* Saussure.

CRABRONIDÆ.

A. S. PACKARD, Jr. (Guide, 160, 161) describes the habits of *Rhopalum pedicellatum* Pack., *Stigmus fraternus* Say, *Cemonus inornatus* Harris, and *Passalæcus mandibularis* Cresson, and (162) *Trypoxylum frigidum* Smith.

NYSSONIDÆ.

E. T. CRESSON (Trans. Amer. Ent. Soc., ii, 137) describes from New Mexico, *Gorytes tricolor* and *G. propinquus*, also from Texas.

EDITORS OF AMERICAN ENTOMOLOGIST (i, 8, fig. 3) describe the habits of *Stizus grandis* Say.

B. BORDEN (Amer. Ent., i, 36) gives an account of the habits of *Stizus grandis* Say.

SPHEGIDÆ.

E. T. CRESSON (Trans. Amer. Ent. Soc., ii, 375) describes *Coloptera Wrightii* from New Mexico. It is the first species yet discovered in America.

A. S. PACKARD, Jr. (Guide, 167, fig. 9) describes the habits of *Sphex ichneumonea* Linn., and (168) of *Sphex tibialis* St. Farg., and 169 (pl. 5, fig. 14) the larva, pupa and habits of *Pelopæus flavipes* Fabr.

SCOLIIDÆ.

E. T. CRESSON (Trans. Amer. Ent. Soc., i, 375) describes *Scolia* (*Discolia*) *flavocostalis*, and *S.* (*Discolia*) *Lecontei*, from New Mexico.

URO CERIDÆ.

E. T. CRESSON (Trans. Amer. Ent. Soc., i, 375) describes *Urocerus areolatus* (with a figure of the fore wing) from New Mexico.

POMPILIDÆ.

A. S. PACKARD, JR. (Guide, 174) describes the larva, pupa, and mode of nesting of *Pompilus funereus* St. Fargeau.

J. H. EMERTON (Amer. Nat., ii, 491) gives an account of the migration of a colony of *Formica fusca* Linn.

FORMICIDÆ.

E. NORTON (Trans. Amer. Ent. Soc., ii, 46) describes as new *Eciton tepeguas*, with probably a variety, *ferruginea*, and *E. clavicornis* from near Cordova.

E. NORTON (Proc. Essex Inst., vi, 1) describes and figures as new; from Mexico, *Camponotus* (*Formica*) *fulvaceus*, *C.* (*Formica*) *nitidus*, *C.* (*Formica*) *nacerdus*, *C.* (*Tapinoma*) *piceatus*, *C.* (*Tapinoma*) *tomentosus*, *Polyrhacis arboricola*, *P. strigata*, *Ectatomma ferruginea*, *Eciton brunnea*, *E. Sumichrastii*, *Pachycondyla Orizabana*, *Pseudomyrma thoracica*, and *Cryptocerus multispinosus*.

J. ANGUS (Amer. Nat., ii, 49) gives a note on the hibernation of ants.

ICHNEUMONIDÆ.

E. T. CRESSON (Trans. Amer. Ent. Soc., i, 1). The author finds, in the large material forwarded by Prof. Sumichrast, so many intermediate forms that he actually "hesitates to say what is an *Ichneumon*, an *Hoplismenus*, a *Joppa*, or a *Trogus*," and provisionally retains all the four above named genera, referring the most doubtful species to *Ichneumon*.

He describes as new from near Cordova: — *Ichneumon Mexicanus*, *I. Zapotecus*, *I. encaustus*, *I. Parredes*, *I. Tepanecus*, *I. Cholula*, *I. Toluca*, *I. Chalco*, *I. Alvarado*, *I. decorosus*, *I. centrosus*, *I. jugiosus*, *I. limitaris*, *I. tenuicornis*, *I. monitus*, *I. Totonacus*, *I. frivolus*, *I. tragicus*, *I. infulatus*, *I. exquisitus*, *I. Montezuma*, *I. Nestor*, *I. Toros*, *I. famelicus*, *I. tenebricus*, *I. intentus*, *I. gracilentus*, *I. arista*, *I. maritus*, *I. Tuxtla*, *I. subspinosus*, *I. Toltecus*, *I. teres*, *I. lectus*, *I. Chichimecus*, *I. lenis*,

I. Aztecus, *Hoplismenus rixosus*, *H. Otomitus*, *H. munitus*, *H. propinquus*, *H. picturatus*, *H. dissonus*, *H. minax*, *H. limatus*, *H. occipitalis*, *H. acclivus*, *H. esurialis*, *H. scutellaris*, *H. abnormis*; *Ædicephalus* (nov. gen), which seems to be intermediate between *Hoplismenus* and *Joppa*.; *Æd longicornis*, *Æd. sororius*, and *Æd. gracilicornis*, *Joppa inclyta*, *J. ? egregia*, *J. ? aciculata*, *J. Sumichrastii*, *J. decorata*, *J. elegantula*, *J. fumipennis*, *Stilpnus tenuicinctus*, *Mesoleptus calidus*, *M. melleus*, *M. bardus*, *M. imbecillus*, *M. emaceratus*, *M. decorosus*, *M. ? bucephalus*, *Tryphon croceiventris*, *T. laticinctus*, *Exochoides Mexicana*, *E. concinna*, *Exochus cæruleiventris*, *E. tricarinatus*, and *E. pulchripes*.

E. T. CRESSON (Trans. Amer. Ent. Soc., ii, 91) describes as new *Hoplismenus ornatus*, from N. York; *Trogus atrocæruleus*, from Louisiana; *T. austrinus*, from Georgia and Florida; *T. marginipennis*, from Dakota Terr.; *T. fulvipes*, from Maine; *T. atrox*, from Dakota; *T. occidentalis*, from Dakota; *T. Copei*, from W. Va.; *T. Bolterii*, from Lake Superior; *T. elegans*, from Maine; *T. Rileyi*, from Illinois; *Stilpnus Americanus*, from New York to Penn.; *S. clypeatus*, from Illinois; *S. Hudsonicus*, from Hudson Bay Terr.; *Mesoleptus elongatus*, from Mass.; *M. inceptus*, from Mass. and Conn.; *M. propinquus*, from Mass. and Del.; *M. assiduus*, from Mass.; *M. sedulus*, from Mass. and N. J.; *M. insidiosus*, from Mass.; *M. scapularis*, from Conn.; *M. honestus*, from Conn. and N. J.; *M. albifrons*, from Conn.; *M. luteifrons*, from Fort Resolution, Great Slave Lake, H. B. T.; *M. fucatus*, from Conn. and West Va.; *M. cultus*, from N. J.; *M. eximius*, from Conn.; *M. facetus*, from West Va.; *M. albocollaris* from Illinois; *M. triangularis*, from Illinois; *M. pulcherrimus*, from Conn.; *M. decens*, from Conn. and W. Va.; *M. ? muliebris*, from W. Va.; *M. ? peregrinus*, from Conn. and N. J.; *M. ? ignotus*, from W. Va.; *M. ? nasutus*, from Penn.; *Tryphon communis*, from H. B. T., Mass. to Penn.; *T. scutellaris*, from Conn.; *T. varifrons*, from Mass. and Conn.; *T. signatipes*, from H. B. Terr.; *T. compressiventris*, from Mass. and Conn.; *T. Burgessii*, from Mass.; *T. tarsalis*, from Conn.; *T. æthiops*, from Mass. and Conn.; *T. ? nasutus*, from Illinois; *T. ? rufithoracicus*, from Cuba; *T. crassus*, from Mass.; *T. dimidiatus*, from New Jersey and Pennsylvania; *T. annulipes*, from Fort Resolution, Great Slave Lake; *T. burrus*, from Conn.; *T. subcrassus*, from Mass. to Penn.; *T. occidentalis*, from Illinois; *T. frontalis*, from Conn.; *T.* (Catocentris Walsh) *philanthoides*, from Illinois; *T. articulatus*, from H. B. Terr.; *Bassus tibialis*, from Illinois; *B. frontalis*, from Conn., Penn. and Illinois; *B. concinnus*, from Conn.; *B. frigidus*, from Great Slave Lake, H. B. T.; *B. agilis*, from Conn. and Illinois; *B. pleuralis*, from Ohio; *B. scutellaris*, from Illinois; *B. sycophanta* (Walsh MS.), from Conn., N. York, Penn., Del. and Ill.; *Cteniscus annulipes*, from Mass.; *C. vitticollis*, from Mass.; *C. clypeatus*, from Great Slave Lake, H. B. Terr.; *C. consors*, from Conn.; *Exyston clavatus*, from Maine to Del. and Illinois;

Exochus propinquus, from Maine to Conn.; *E. atrocoxalis*, from Dakota; *E. albifrons* (Walsh MS.), from Illinois; *E. carinatus*, from Mass., Conn. and Illinois; *E. semirufus*, from Mass., Conn., and N. Y.

TENTHREDINIDÆ.

A. S. PACKARD, Jr. (Guide 216, fig. 145) figures and briefly describes the habits of the larva of *Abia caprifolium*; and with W. C. Fish, the habits and larva of *Pristiphora identidem*.

NORTON (Guide, 220, note) describes *Nematus trilineatus* n. sp.; *Selandria caryæ*, n. sp., and *Lophyrus pinus-rigidus*, n. sp., all from Mass., and gives a brief synopsis of the American Lophyri.

W. C. FISH (Guide, 225) briefly notes the habits of *Lophyrus pinus-rigidus* Norton.

LEPIDOPTERA RHOPALOCERA.

THE most important work which has appeared, during the year, upon the diurnal Lepidoptera of North America, is "The Butterflies of North America, with colored drawings and descriptions" by W. H. EDWARDS, published, in quarto, by the American Entomological Society. The two parts which are already out, give colored lithographs of both surfaces of each sex of the species illustrated, and the butterflies selected are either new, little known, or those species which have been confounded among themselves. In particular, Mr. Edwards has rendered good service by carefully drawn descriptions and most accurate illustrations of all the larger species of *Argynnis*, excepting *A. Idalia*, found on this side of the continent. Unfortunately only the perfect insects have thus far been represented and described, but the author promises to give the complete histories, when they are known, and furnish illustrations of the earlier stages whenever it is possible to secure satisfactory drawings. After the completion of a moderately sized volume in quarterly instalments, the author will be able to judge whether sufficient encouragement

warrants the continuation of the work. A synopsis of the known American species is promised within the volume, but has not yet been commenced. The species figured are *Argynnis Diana*, *A. Cybele*, *A. Aphrodite*, *A. Nokomis*, *A. Atlantis*, *A. Calippe*, *A. Hesperis*, *Colias Alexandra*, *C. Helena*, *C. Christina*, *C. Behrii*, and *Apatura Alicia*.

C. J. S. BETHUNE (Can. Ent., i, 9-10) gives some notes on a few Canadian butterflies.

W. H. EDWARDS (Trans. Am. Ent. Soc., ii, 207-10) describes two new North American butterflies, *Melitæa Marcia* and *Thecla Ontario*.

A. S. PACKARD, Jr. (Proc. Amer. Assoc. Adv. Sc., xvi, 154-7; Amer. Nat., i, 674-6) compares the insect fauna of Mt. Washington, N. H., with that of Labrador. Most of the examples are drawn from the Heterocera; but five species of butterflies are cited as circumpolar and eight as inhabiting exclusively Labrador and Arctic America. The writer thinks that "*Chionobas semidea* and *Argynnis Montinus*, thus far only known to inhabit the summit of Mt. Washington, may still be found northward, or if not, probably became extinct at the North, finally localizing themselves on the single peak where they now occur; on the other hand the occurrence of *C. Chryxus* on Pike's Peak, and *C. Nevadensis* found in Nevada, is in favor of those species being autochthonous."

A. S. PACKARD, Jr. (Guide to Study of Insects, 244-56) treats of the Rhopalocera in general, and begins his account of butterflies (to be concluded in the next part,—1869), referring particularly, and often with descriptions of the earlier stages, to *Papilio Asterias*, *P. brevicauda*, n. sp. (described by W. Saunders), *P. Turnus*, *P. Daunus* (fig.), *P. Troilus*, *P. Philenor* (figs.), *Parnassius Smintheus*, *Pieris oleracea* (figs.), *P. rapæ*, *P. Protodice*, *Colias Philodice*, *C. Labradorensis*, *C.*

interior, *C. occidentalis*, *Terias Lisa*, *T. Delia*, *Danais Archippus*, *Heliconia Melpomene*, *Argynnis Idalia*, *A. Cybele*, *A. Atlantis*, *A. Aphrodite* (fig.), *A. Myrina*, *A. Bellona*, *Melitæa Phaeton* (fig.), *M. Tharos* and *M. Packardii*, nov. sp. (described by W. Saunders).

T. REAKIRT (Proc. Acad. Nat. Sc. Philad., 1868, 87-91) describes a number of new species of Rhopalocera, mostly from Mexico and New Grenada, viz:—*Lycæna marina*, *Goniloba dolores*, *Pyrgus Georgina*, *Cirrochroa Tyche*, *Papilio Burtonii*, *Dircenna Bairdii*, *Mechanitis Franis*, *Pyrrhopyga Bogotana*, *Pyrgus alana*, *Heliconius Guarica*.

E. B. REED (Can. Ent., i, 19) gives a list of butterflies found at Amherstburg, Ontario, Canada.

W. SAUNDERS (Can. Ent., i, 11-12) publishes some notes on a few butterflies captured during a trip to Saguenay.

S. H. SCUDDER (Proc. Bost. Soc. Nat. Hist., xi, 375-84; also separate) gives a supplement to his previous list of the "Butterflies of New England," published in 1863. He increases the number of species from eighty-one to ninety-three, adding four new species of *Hesperia*, *H. Quadaquina*, *H. Aconootus*, *H. Hianna* and *H. Mesapanno*; various notes concerning the times of appearance of the different species are appended.

S. H. SCUDDER (Proc. Bost. Soc. Nat. Hist., xi, 401; Ent. Notes, i, 6) gives short descriptions of three new species of butterflies from Iowa, *Chrysophanus Dione*, *Apatura Proserpina* and *Hesperia Iowa*.

S. H. SCUDDER (Check List Butterflies of New England, 32mo., Boston, 1868, 7) enumerates ninety-five species, of which two (*Hesperidæ*) have not before been recorded from that region.

PAPILIONIDÆ.

EDITORS OF AMERICAN ENTOMOLOGIST (Amer. Ent., i, 6) state that the larva of *Papilio Troilus* feeds on sassafras and prickly ash.

W. H. EDWARDS (Trans. Amer. Ent. Soc., ii, 207) describes a curious specimen of *Papilio Turnus*, in which one-half is black (*P. Glaucus*), the other yellow (*P. Turnus*); not an instance of gynandromorphism, for the specimen is a ♀.

W. H. EDWARDS (Can. Nat., i, 22) records *Papilio Machaon* from Hudson's Bay.

A. S. PACKARD, Jr. (Guide, 274-8) gives a description by W. Saunders, of the larva of *Papilio Troilus*, found on sassafras, lilac and the spice bush, and of the imago of *Papilio brevicauda* (nov. sp.) Saunders, from Newfoundland, which, however, may be only a variety of *P. Asterias*.

T. REAKIRT (Proc. Acad. Nat. Sc. Philad., 1868, 89) describes *Papilio Burtonii* from N. Grenada.

E. B. REED (Can. Ent., i, 19) records *Papilio Thoas*, *P. Asterias* and *P. Turnus* from Amherstburg, Ontario.

W. SAUNDERS (Can. Ent. i, 11) records *Papilio Turnus* from Tadoussac, and *P. Asterias* from Cacouna, Canada.

S. H. SCUDDER (Proc. Bost. Soc. Nat. Hist., xi, 375-6) gives additional notes upon the times of appearance of the larva, chrysalis and imago of *Papilio Asterias* and *P. Turnus*.

L. TROUVELOT (Proc. Bost. Soc. Nat. Hist., xi, 91-2) compares the young larvæ of *Papilio Turnus*, *P. Troilus* and *P. Asterias*, and gives an account of the interesting way in which *P. Turnus* makes a carpet of silk on which it rests.

PIERIDÆ.

W. H. EDWARDS (Butterflies of North America, Pt. 2) describes and figures *Colias Alexandra*, ♂, ♀, from the Mountains of Colorado, *C. Helena*, ♂, ♀, from Mackenzie's River, *C. Christina*, ♂, ♀, from Slave River, and *C. Behrii*, ♂, ♀, from the Yo Semite Mountains of California.

J. C. MERRILL, Jr. (Proc. Bost. Soc. Nat. Hist., xi, 300) announces the appearance of *Pieris rapæ*, in various localities in northern Vermont.

A. S. PACKARD, Jr. (Guide, 249-50) describes the larva of *Pieris oleracea*, and (from Saunders' notes) the pupa of *P. Protodice*; the former feeds on the turnip. He also gives descriptions, by W. Saunders, of the eggs, larva and chrysalis of *Colias Philodice*; the larva feeds on clover, lupine and the pea.

E. B. REED (Can. Nat., i, 19) records *Pieris oleracea*, *P. Protodice* and *Colias Philodice* from Amherstburg, Ontario.

W. SAUNDERS (Can. Ent., i, 11) records *Pieris rapæ* as common at Ha Ha Bay, Chicoutimi and Cacouna, and *Colias Philodice* as found at Tadousac and Cacouna, Canada.

S. H. SCUDDER (Proc. Bost. Soc. Nat. Hist., xi, 300) states that *Pieris rapæ* has been taken in Lewiston, Me.

S. H. SCUDDER (Proc. Bost. Soc. Nat. Hist., xi, 376) adds *Pieris rapæ*, *P. Protodice*, *Colias Eurytheme* and *Anthocaris Genutia* to his list of New England butterflies, and adds farther remarks upon *Pieris oleracea* and *Colias Philodice*.

P. S. SPRAGUE (Can. Nat., i, 21) records the appearance of *Pieris rapæ* at Lewiston, Me. and Montpelier, Vt.

DANAIDES.

EDITORS OF AMERICAN ENTOMOLOGIST (Amer. Ent., i, 28-9) record several instances of vast flights of *Danaïs Archippus* and give figures of the caterpillar, chrysalis, and imago.

E. B. REED (Can. Ent., i, 19) records *Danaïs Archippus* from Amherstburg, Ontario.

HELICONIDÆ.

T. REAKIRT (Proc. Acad. Nat. Sc. Philad., 1868, 89-91) describes *Dircenna Bairdii*, nov. sp., allied to *D. Jemima*; *Mechanitis Franis*, nov. sp., allied to *M. Menapis*; and *Heliconius Guarica*, nov. sp., allied to *H. Hydrara*; all from New Grenada.

NYMPHALIDÆ.

C. J. S. BETHUNE (Can. Ent., i, 9) records the capture of *Argynnis Atlantis* at Quebec.

B. BILLINGS (Can. Ent., i, 28-9) records a station for *Melitæa Phaeton* near Ottawa, Can.; and gives some memoranda concerning its time of appearance, etc.

EDITORS OF AMERICAN ENTOMOLOGIST (Amer. Ent., i, 39) describe the caterpillar of *Vanessa interrogationis*, found on the hop vine.

W. H. EDWARDS (Butterflies of North America) describes and figures *Argynnis Diana*, ♂, ♀, from Georgia and the lower part of W. Virginia; *A. Cybele*, ♂, ♀, from New York, New Jersey, Pennsylvania and Virginia and westward to Illinois; *A. Aphrodite*, ♂, ♀, from Canada to West Virginia and Illinois; *A. Nokomis*, ♂, from Montana; *A. Atlantis*, ♂, ♀, from British America and the elevated parts of New York and New England; *A. Calippe*, ♂, ♀, from California; *A. Hesperis*, ♂, ♀, from Colorado; and *Apatura Alicia*, ♂, ♀, from New Orleans. No histories of the insects are given, but the author discusses at length the distinction between *A. Cybele* and *A. Aphrodite* and the synonyms to be applied to each, and under *A. Diana* treats at some length of the remarkable diversity of the sexes, discussing the relation of the insect to the fossil butterfly, *Vanessa Pluto*, a wood-cut of which is given; the author says he is "apt to believe that our superb *Diana* comes of a venerable antiquity, and is entitled to rank as the head of this large and beautiful family."

W. H. EDWARDS (Trans. Amer. Ent. Soc., ii, 207-9) describes *Melitæa Marcia*, nov. sp., from New York to Louisiana. The author considers

this to have been formerly confounded with *M. Tharos*; he farther discusses the species described by Boisduval, under the names of *M. Tharos* and *M. pulchella*.

A. S. PACKARD, Jr. (Amer. Nat., ii, 219) gives figures of the caterpillar and chrysalis of *Melitæa Phaeton*. He states that the larva hibernates and feeds on Aster, Viburnum, and Hazel.

A. S. PACKARD, Jr. (Guide, 252-6) describes the larva and chrysalis of *Argynnis Atlantis* and *Melitæa Phaeton*, and of the chrysalis of *M. Myrina*. He also gives a description by W. Saunders, of the egg and different stages of the larva of *Melitæa Myrina*, and of the imago of *M. Packardii*, nov. sp., allied to *M. Tharos*.

T. REAKIRT (Proc. Acad. Nat. Sc. Philad., 1868, 89) describes the ♀ of *Cirrochroa Tyche* Feld., from Mindora, Philippine Isl.

E. B. REED (Can. Ent., i, 19) records *Vanessa Milberti*, *V. Progne*, *Limenitis Disippus*, *Argynnis Cybele* and *Melitæa Tharos* from Amherstburg, Ontario.

F. G. SANBORN (Proc. Bost. Soc. Nat. Hist., xi, 326) describes the case in which the larva of *Limenitis Misippus* hibernates.

W. SAUNDERS (Can. Ent., i, 11) records *Argynnis Atlantis* and *A. Myrina* from Cacouna; *Melitæa Harrisii* from Ha Ha Bay; *M. Tharos* from Ha Ha Bay and Cacouna; *Vanessa Milberti* from Ha Ha Bay; and *Pyrameis Cardui* from Saguenay River, Canada.

S. H. SCUDDER (Proc. Bost. Soc. Nat. Hist., xi, 378-80) adds *Grapta gracilis* to his list of New England butterflies (described in his previous list as a hoary-banded form of *G. C-argenteum*) and makes additional remarks upon the times of appearance and food-plants of *Limenitis Misippus*, *Argynnis Atlantis*, *A. Aphrodite*, *A. Montinus*, *A. Bellona*, *Melitæa Nycteis* (*M. Cœnone* of previous list), *M. Harrisii* (the synonyms appended to this species in the previous list belong to *M. Nycteis*), *Pyrameis Cardui*, *P. Atalanta*, *Junonia Cœnia*, *Vanessa Antiopa*, *V. J-album* and *V. Milbertii*.

P. S. SPRAGUE (Can. Ent., i, 41-2) refers to the time of appearance of *Melitæa Phaeton*.

MORPHIDES.

H. HAGEN (Proc. Bost. Soc. Nat. Hist., xii, 163-4) records an instance of an imago of *Morpho Ilioneus* from Brazil, bearing the head of the caterpillar. But one previous instance has been noticed among butterflies, that of *Limenitis populi* of Europe, described by Wesmael.

SATYRIDES.

C. J. S. BETHUNE (Can. Ent., i, 9) records the capture of *Chionobas Jutta* near Quebec.

S. H. SCUDDER (Proc. Bost. Soc. Nat. Hist., xi, 380) adds short remarks upon *Chionobas semidea*, *Satyrus Alope* and *Nephele*, *S. Portlandia*, *Hipparchia Boisduvalii* and *Neonympha Eurytris*.

LIBYTHEIDÆ.

W. SAUNDERS (Can. Ent., i, 25-6) records *Libythæa Bachmanii* from Hamilton, Canada, and gives a figure and description of the imago.

LYCÆNIDÆ.

C. J. S. BETHUNE (Can. Ent., i, 8) states that *Polyommatus Epixanthe* abounds near London, Canada.

C. J. S. BETHUNE (Can. Ent., i, 10) states that the larva of *Thecla strigosa* feeds on the thorn, and records the capture of *Lycæna Pembina* at Cacouna, Canada.

W. H. EDWARDS (Trans. Amer. Ent. Soc., ii, 209-10) describes *Thecla Ontario*, nov. sp., near *T. humuli*, from Canada.

A. R. GROTE and C. T. ROBINSON (Trans. Amer. Ent. Soc., i, 323-4; Descript. Amer. Lep., iii, 1-2) describe *Thecla inorata* (T. Falacer Bd. and Lec.) from Canada, N. York and Georgia, and give the synonymy of the species closely allied to it.

A. R. GROTE and C. T. ROBINSON (Trans. Amer. Ent. Soc., ii, 179-80; Descript. Amer. Lep., iv, 1-2) review what has been written concerning *Thecla Falacer* Godart, and the species allied to it. According to the latest opinion of these authors there are four species, *Thecla Calamus*, *T. Acadica*, *T. lorata* and *T. inorata*, which have been more or less confounded; they endeavor to explain their confused synonymy, and the conflicting views which authors have held.

C. S. MINOT (Proc. Bost. Soc. Nat. Hist., xii, 98) states that *Chrysophanus Americanus* is three brooded.

T. REAKIRT (Proc. Acad. Nat. Sc. Philad., 1868, 87) describes *Lycæna marina*, nov. sp., allied to *L. Cassius*, from Mexico.

E. B. REED (Can. Ent., i, 21) announces the discovery of a new *Thecla*, *T. Ontario*, from Port Stanley, Canada.

W. SAUNDERS (Can. Ent., i, 3-4) describes the larva and chrysalis of *Polyommatus Americanus*, which he believes to hibernate in the larval state.

W. SAUNDERS (Can. Ent., i, 12) records *Lycæna Pembina* and *Polyommatus Americanus* from Cacouna, Canada, and describes the larva of the former, taken on *Vicia cracca*.

W. SAUNDERS (Can. Ent., i, 26) records *Lycæna violacea* from Can.

S. H. SCUDDER (Proc. Bost. Soc. Nat. Hist., xi, 377-8) describes *Thecla Clothilde* from Maine; adds *Thecla Acadica* and *T. Henrici* to the list of New England butterflies, and makes farther remarks upon the history of *Chrysophanus Epixanthe*, *Polyommatus Porsenna*, *Thecla Falacer*, *T. strigosa*, *T. Auburniana*, *T. Nippon*, *T. Mopsus*, and *T. Augustus*.

S. H. SCUDDER (Proc. Bost. Soc. Nat. Hist., xi, 435-6; Ent. Notes, i, 10-11) describes *Thecla Juanita*, nov. sp., allied to *T. Halesus*, from Florida.

C. P. WHITNEY (Proc. Bost. Soc. Nat. Hist., xi, 162-3) describes *Thecla Souhegan*, nov. sp., from New Hampshire.

HESPERIDÆ.

W. H. EDWARDS (Trans. Amer. Ent. Soc., ii, 122) describes *Hesperia Waco*, nov. sp., from Texas.

T. REAKIRT (Proc. Acad. Nat. Sc., Philad., 1868, 88-90) describes the following new species of Hesperidæ: *Goniloba dolores* and *Pyrgus Georgina* from Mexico; and *Pyrropyga Bogotana* and *Pyrgus alana* from New Grenada.

W. SAUNDERS (Can. Ent., i, 12) records *Nisoniades Persius* from Ha Ha Bay, and *Hesperia Mystic* from Ha Ha Bay and Cacouna, Canada.

S. H. SCUDDER (Proc. Bost. Soc. Nat. Hist., xi, 380-84) describes *Hesperia Quadaquina*, nov. sp., near *H. Pocahontas*, from Mass. and Conn.; *H. Acanootus*, nov. sp., near *H. Manataqua*, from Mass.; *H. Hianna*, nov. sp., near *H. punctella*, from Mass. and N. Hampshire; and *H. Mesapano*, nov. sp., near *H. Mandan* from Maine. He also adds to the New England butterflies *Hesperia verna* and *H. vialis*, unites *Hesperia Hegon* with *H. Samoset*, described as distinct in his previous list, and makes additional remarks on *Heteropterus marginatus*, *Nisoniades Persius*, *Eudamus Lycidas*, *Hesperia Metacomet*, *H. Massasoit*, *H. Leonardus*, *H. Egeremet*, *H. Manataqua*, *H. Ahaton*, *H. Samoset* and *H. Monoco*.

S. H. SCUDDER (Check List, 7) records *Hesperia Delaware* and *H. Logan* from New England.

LEPIDOPTERA HETEROCERA.

A. R. GROTE and C. T. ROBINSON (Trans. Amer. Ent. Soc., i, 323). Descriptions of American Lepidoptera, No. 3.

A. R. GROTE (Trans. Amer. Ent. Soc., ii, 65). On the North American Platypteryginæ.

A. R. GROTE and C. T. ROBINSON (Trans. Amer. Ent. Soc., ii, 67). Notes on the North American Lepidoptera in the British Museum, and described by Mr. Francis Walker. Carrying with them material for comparison, and aided by the kind attentions of Dr. Gray, Messrs. Walker, Waterhouse and Butler, the authors have been able to identify many of the species described by Mr.

Walker, which were previously unknown to American entomologists except by name, and their notoriously insufficient limitation in Walker's "Lists of the Lepidopterous Insects" in the British Museum. These corrections and notes on synonymy, which are of great value to entomologists, relate to all the families of moths.

A. R. GROTE (Trans. Amer. Ent. Soc., ii, 115). On the synonymy of certain species of American Lepidoptera. These remarks are mostly due to an examination of types of moths in the British Museum, the Museum of the *Jardin des Plantes*, and Dr. Clemens' types.

A. R. GROTE and C. T. ROBINSON (Trans. Amer. Ent. Soc., ii, 179). Descriptions of North American Lepidoptera, No. 4.

A. R. GROTE and C. T. ROBINSON (List of the Lepidoptera of North America, I. Published by the American Entomological Society, Philad. The catalogue is a synonymical one, and contains the Sphingidæ, Ægeriadæ, Thyridæ, Zyganidæ, and Bombycidæ of that part of the continent lying North of Mexico.

SPHINGIDÆ.

GROTE and ROBINSON (Trans. Amer. Ent. Soc., i, 325) describe as new, *Sesia Thetis* from California, which agrees closely with *S. diffinis*.

GROTE and ROBINSON (Trans. Amer. Ent. Soc., ii, 179) describe as new, *Sesia axillaris*, from Texas, and from the study of this species reduce *Hæmorrhagia* to the rank of a subgenus; and redescribe *Euproserpinus Phaeton* G. and R., from California.

EDITORS OF AMERICAN ENTOMOLOGIST (Amer. Ent. 21, fig. 10) describe the habits of *Sphinx quinquemaculata* Haworth.

C. J. S. BETHUNE (Can. Ent. i. 10), notices the occurrence in Canada of *Lepisesia flavofasciata* Walk., *Hæmorrhagia gracilis* G. and R., *H. Thysbe* (Fabr.), *Aellopos Tantalus* (Linn.), *Thyreus Abbotii* Swains., *Amphion Nessus* (Cram.), *Otus Chærilus* (Cram.), *O. Myron* (Cram.), *O. versicolor* (Harris), and *Philampelus pandorus* (Walker).

ÆGERIADÆ.

GROTE and ROBINSON (Trans. Amer. Ent. Soc. ii, 179) describe *Ægeria pictipes* (pl. 2, fig. 64, ♂) from Penn.; *Zenodoxus*, nov. gen., *Z. maculipes* from Texas; *Cressonia juglandis* (Smith), *Macrosila quin-*

quemaculata (Haw.), *Daremma undulosa* Walk., *Ceratonia Amyntor* (Hübner), *Sphinx eremitus* (Hübner), *S. chersis* (Hübner), and *Ellema Harrisii* Clem.; also describes (l. c., 26) the larva of *Philampelus satellitia*; and notices *Sphinx quinquemaculata* Haw., *S. cinerea* Harris, and *Darapsa pampinatrix* (Smith).

E. B. REED (Can. Ent. 40) notices the musical sounds produced by the larva of *Smerinthus excæcatus* Harris.

P. S. SPRAGUE (Can. Ent. 41) states that *Macrosila celius* G. and R., (*Sphinx 5-maculata* Haw.), *M. Carolina*, and *Hemileuca Maia* Walk., appeared in the imago state in the late summer or in the autumn.

ZYGÆENIDÆ.

GROTE and ROBINSON (Trans. Amer. Ent. Soc., i, 326) describe and figure as new, *Alypia dipsaci* (pl. 6, fig. 37, ♀); *A. Sacramenti* (pl. 6, fig. 38, ♀); *A. Lorquini* (pl. 6, fig. 39, ♂) and *A. Mariposa* (pl. 6, fig. 40, ♀), all from California. Also, *Ctenucha ochroscapsus*, and redescribe *C. rubroscapsus* Ménétries from California. They also redescribe *Gnophæla* (Walker) *vermiculata* Grote (*Omoiala vermiculata* Grote), who states that it mimics the butterfly *Stalachtis heliconides*; and describe as new *Gnophæla Hopfferi* from California, and state that a fourth species of this genus from Mexico, and allied to *G. vermiculata* G. and R., from Colorado Territory, is contained in the extensive collection of Dr. Felder, in Vienna.

W. SAUNDERS (Can. Ent., 12) notes the occurrence at Cacouna of *Alypia Langtonii* Couper, and at Ha Ha Bay of *Ctenucha Virginica* Charp.

GROTE and ROBINSON (Trans. Amer. Ent. Soc., i, 326) describe *Euscirrhopterus Gloverii*, from Texas; *Cydosia aurivitta* from Texas, remarking that Fitch's *Deiopeia bella* is probably a species of *Cydosia*.

BOMBYCIDÆ.

GROTE and ROBINSON (Trans. Amer. Ent. Soc., i, 326, pl. 6, fig. 42, ♂) figure *Epicallia virginialis* Boisd., from California. They consider *Epicallia guttata* Pack. (*Agarista guttata* Boisd.), as a genuine species, from the examination of several specimens. They also describe *Arctia Achaia* (pl. 6, figs. 45, ♂, 46, ♀) from California, and redescribe *A. Dahurica* Boisd. from California, noting its occurrence on the Aleutian Isles; and *Nemeophila cæspitis* and *N. Cichorii* from California.

A. R. GROTE (Trans. Amer. Ent. Soc., ii, 65) remarks on the synonymy and gives a list of the species of *Platypteryginæ*.

GROTE and ROBINSON (Trans. Amer. Ent. Soc., ii, 179, pl. 2, fig. 63, ♀) describe *Cisthene unifascia* from Florida and Texas; *Monoleuca*, nov. gen., *M. semifascia* (pl. 2, fig. 62, ♂) from W. Va. and Texas; *Limacodes* (Lithacodes, pl. 2, fig. 61) from South Carolina; *Adoneta pygmæa* from Texas; *Heuretes*, nov. gen., *H. picticornis* from St. Thomas, W. I., with a description of the cocoon; *Psyche confederata*

(pl. 3, fig. 66; case, 67, ♂), from Texas (the moth alluded to by us in the Synopsis of U. S. Bombycidae, is the *Platæceticus Gloverii*); *Ichthyura ornata* from California; *Hemileuca Grotei* (Hopffer MS., pl. 2, fig. 60) from Texas; *Hyperchiria Zelleri* (pl. 2, fig. 65) from the United States.

A. S. PACKARD, Jr. (Guide, 11, figs. 11, 12) describes the thorax of *Telea Polyphemus*, and compares it with that of *Hepialus*.

EDITORS OF AMERICAN ENTOMOLOGIST (Amer. Ent. i, 39) notice the occurrence of *Hyperchiria Io* Walk., on the hop vine, and of *Edema albifrons* Walker, on the oak. On p. 40, they describe the stinging properties of the spines of *Empretia stimulea* Clem.; and notice the habits of *Citheronia regalis* Hübn.; on p. 59, the occurrence of *Hyphantria textor* Harris, on the hickory; and on p. 79, fig. 67, notice the habits of *Orgyia leucostigma* Smith.

W. SAUNDERS (Can. Ent., 12) notes the occurrence of *Spilosoma Virginica* (Fabr.), and *Telea Polyphemus* Fabr., at Ha Ha Bay, and *Crocota ferruginosa* Walk., at Cacouna. On p. 18, *Gnophria vittata* Harris; *Euphanessa mendica* (Walk.); *Crocota rubicundaria* Hübn.; *Utetheisa bella* Hübn.; *Callimorpha Clymene* (Esper) are recorded.

E. B. REED (Can. Ent. 19) notices the occurrence at Amherstburg, Ontario Co., Canada, of *Arctia Saundersii* Grote, and *A. phalerata* Harris.

W. SAUNDERS (Can. Ent., 20) describes the larva of *Callimorpha Lecontei* Boisd.; and on p. 26, he notices *Pyrrharcha Isabella*, *Arctia phalerata* Harris; and *A. Saundersii* Grote.

W. V. ANDREWS (Amer. Nat. 311) writes on the Cynthia Silkworm.

R. BUNKER (Amer. Nat., 381) states that he has bred a *Platysamia Cecropia* "without antennæ."

NOCTUIDÆ.

GROTE and ROBINSON (Trans. Amer. Ent. Soc., i, 339) describe *Arzama obliquata* (pl. 6, fig. 47, ♀) from New York; *Gortyna purpurifascia* (pl. 7, fig. 51, ♀) from Mass.; *Gortyna speciosissima* (pl. 7, fig. 52, ♀) from Seekonk, R. I.; *Gortyna inquisita* from New York and Rhode Island; *Hydræcia sera* pl. 7, fig. 55, ♂), Canada to Penn.; *Xanthia ralla* (pl. 7, fig. 49, ♂) Trenton Falls; *Xanthia puta* (pl. 7, fig. 50, ♂) Trenton Falls; *Agrotis collaris* (pl. 7, fig. 53, ♀) from New York; *Agrotis geniculata* (pl. 7, fig. 54, ♂) from Philadelphia; *Agrotis repentis* (pl. 7, fig. 58, ♂), from New York; *Agrotis murænula* (pl. 7, fig. 48, ♀) from New York and Rhode Island; *Agrotis violaris* (pl. 7, fig. 59, ♂) from Penn.; *Xylina Bethunei* (pl. 7, fig. 56, ♂), Canada to Long Island, and New York; *Xylina capax* (pl. 7, fig. 57, ♀) from Penn.; *Erastria synochitis* from Mass. to Penn.; *E. musta* from New York to Penn.

W. SAUNDERS (Can. Ent., 13) notes the occurrence of *Agrotis suffusa* W. Verz., at Ha Ha Bay.

GROTE and ROBINSON (Trans. Amer. Ent. Soc., ii, 179) consider *Mi-*

croœalia obliterated Grote, as a variety of *M. diphter odes* Guénée, and figure it (pl. 3, fig. 70, ♀); they describe as new, *Acronycta morula* (pl. 3, fig. 75, ♀) from N. York; they describe and figure *Hadena distincta* (pl. 3, fig. 72, ♂) from the Atlantic district; *H. subjuncta* (pl. 3, fig. 71, ♂); *Chæphora*, nov. gen., *C. fungorum* (pl. 3, fig. 74, ♂) from the Atlantic district; *Cucullia convexipennis* (pl. 3, fig. 76, ♀), Atlantic district; *Dyops futilis* (pl. 3, fig. 73, ♂) from Florida; and *Plusia mappa* from Canada.

EDITORS OF AMERICAN ENTOMOLOGIST (Amer. Ent., i, 22, fig. 11) describe the habits of *Gortyna nitela* Guén.

E. B. REED (Can. Ent., 19) notes the occurrence at Amherstburg of *Catocala amatrix* Hübn., and *C. parta* Guén.

A. S. PACKARD, JR. (Proc. Amer. Assoc. Adv. Sc., 156) states that *Anarta nigrolunata* Pack., is identical with *A. melanopa* Thunberg, and notices its occurrence on Mt. Washington, N. H., and also of *A. leucocycla* Staud., in the same locality; and that *A. bycicla* Pack., is identical with *A. melaleuca* Thunberg, from Lapland.

PHALÆNIDÆ.

GROTE (Trans. Amer. Ent. Soc., ii, 115) describes *Calledapteryx*, nov. gen.; *C. dryopterata*, n. sp.

W. SAUNDERS (Can. Ent., 13) notes the occurrence of *Angeronia croœotaria* Guén., at Ha Ha Bay; *Corycia albata* Guén., at Cacouna; *Melanippe gothicata* Guén., "abundant between Ha Ha Bay and Chicoutimi; common also at Tadousac and Cacouna," and *Scotosia undulata* Linn., at Tadousac and Cacouna.

EDITORS OF AMERICAN NATURALIST (Amer. Nat. ii, 333) figure *Eudalimia subsignaria* Hubn., and notice its habits.

A. S. PACKARD, JR. (Proc. Amer. Assoc. Adv. Sc.) records the occurrence of *Cidaria truncata* Hufn. var., and *C. abrasaria*, H.-S., in Labrador, and states that *Melanippe hastata* Linn., is not distinguishable from *M. gothicata* Guén., taken in Labrador.

PYRALIDÆ.

SAUNDERS (Can. Ent., 13) notes the occurrence of *Ennychia octomaculata* (Linn.), at Cacouna.

EDITORS OF AMERICAN NATURALIST, (Amer. Nat. ii, 333) figure the different stages of *Hypena humuli* Harris, and pupa and adult of *Ilythia colonella* Hübn.

TORTRICIDÆ.

A. R. GROTE (Trans. Amer. Ent. Soc., 115) describes *Tortrix Rileyana*, probably from Illinois. The larva feeds on the hickory and *Symphoricarpus*.

C. V. RILEY (Journal of Horticulture, Boston, Oct.) gives the history and description (with figures) of *Penthina Fullerea*, n. sp.

TINEIDÆ.

A. S. PACKARD, Jr. (Guide, p. 67) describes the changes undergone by the larva of a species of this family, before assuming the pupa state.

DIPTERA.

NEW YORK, JANUARY 27, 1869.

Mr. A. S. PACKARD, Jr. :

Dear Sir :— You have asked me to prepare for your “Entomological Record” a short statement of the present state of American Dipterology and its desiderata in the future. You have also expressed the desire that to this statement should be added an account of what has been done for American Diptera in 1868.

As it has happened, very unfortunately, that for the last twelve years I have been the only person in America who has appeared before the public as taking an interest in general dipterology, you will allow me, I hope, to express myself in my own name and in the first person. This will enable me to express my opinions with more directness, and it will enable your readers to value those opinions according to the more or less confidence they may place in my experience and in my judgment.

I am, etc.,

R. OSTEN SACKEN.

The publication of my “Catalogue of the Described Diptera of North America,” in 1858, showed that up to that time about eighteen hundred Diptera from that part of the world had been described, and that these descriptions were scattered in nearly one hundred different publications, in seven languages. Besides the inconvenience of having these descriptions so much scattered, their study soon proved that most of them, principally those of Mr. Walker’s, were utterly unavailable for the purpose in view, *i. e.*, the recognition of the described species. Not only were the descriptions insufficient, but a great many species were synonymous with species formerly described, or they were placed in the wrong genera, even in the wrong families. As an instance of the insufficiency of

the then existing descriptions, the genera *Dolichopus* and *Trypeta* may be quoted. Thirty-two species of *Dolichopus* were described previous to 1858 (compare Catalogue, etc., p. 59); nevertheless, when Mr. Loew was preparing his Monograph of the American *Dolichopodidæ*, although he had *forty-seven* species of *Dolichopus* before him, he was able to recognize *a single one* only among the extant descriptions. The conscientious labor which he bestowed upon the critical examination of these descriptions, may be witnessed on pages 20 to 24 of the Monographs of North American Diptera, vol. ii. In the genus *Trypeta*, the *Catalogue*, etc. enumerates forty-five described species; of these, however, about one-half have been recognized since as synonymes, or as not even belonging at all to the genus *Trypeta*. The study of most of the other larger genera, as *Tachina*, *Tabanus*, *Syrphus*, *Chironomus*, *Culex* and others, will give exactly similar results.

Thus, from the literature on American Diptera, as it stood in 1858, only a very imperfect knowledge of the real condition of the American fauna could be gathered.

Having formed a considerable collection of Diptera during the first three years of my residence in this country, I availed myself of the offer to describe them, which Mr. Loew, the foremost among European dipterologists, had previously made me. Owing to the peculiar difficulties attending the study of the order of Diptera, it was my full conviction that a truly scientific basis for the pursuance of this study in America had to be laid by an European entomologist. Two circumstances especially strengthened me in this conviction; the necessity to form new genera, requiring a thorough knowledge of the already existing genera from all parts of the world; the frequent occurrence of species common to both continents, requiring a thorough knowledge of the European fauna, the possession of an European collection, and a

great experience in the difficult task of comparing closely resembling species.

The principal publications of Mr. Loew on North American Diptera, have appeared in two forms; in monographs of single families, and in detached descriptions of new species. The materials were derived, besides my collections, from different other sources.

The first volume of the "Monographs of the Diptera of North America," published by the Smithsonian Institution, appeared in 1862. It contains, besides a sketch of the systematic arrangement and the terminology of the Diptera, the monographs of the following families: *Trypetidæ*, *Sciomyzidæ* and *Ephydrinidæ*, all prepared by Mr. Loew; and besides, a paper on the *Cecidomyidæ*, written by me.

The second volume of these monographs, etc., appeared in 1864, and contains an elaborate monograph on the North American *Dolichopodidæ* by Mr. Loew.

A third volume is finished by Mr. Loew in manuscript, and, it is to be hoped, will be published soon.

In the mean time, I had prepared a *fourth* volume, containing the first part of a Monograph on the North American *Tipulidæ*, one of the few families of insects on which I felt competent to write. This volume, printed in 1868, was distributed early in January, 1869.

The detached descriptions of new species were published by Mr. Loew, under the title of *Diptera Americæ Septentrionalis Indigena*, in the *Berliner Entomologische Zeitschrift*, since 1861. The descriptions are in Latin. *Eight centuries* of such descriptions have appeared, and Mr. Loew expects soon to issue two more, thus to complete the thousand of new species.*

The "Monographs" and the "Centuries" thus represent the principal progress made by American Dipterol-

* The first five centuries have been issued also as a separate volume.

ogy between 1858 and 1868. Other publications, which have appeared during this interval, both in this country and in Europe, are not numerous.

If I am asked now, what the *desiderata* for the future of this branch of science in America are, I would answer :

1. Continue the publication of North American Diptera *in monographs*.

2. Avoid as much as possible the publication of detached species, either singly or in numbers.

The cases when the publication of detached species of Diptera can be really useful in the present state of American dipterology are rare, and will easily suggest themselves to the good sense of the unprejudiced.

Conscientious monographs are always useful.

Let monographs be prepared of the families of Diptera on the same plan as the monograph of the *Dolichopodidæ* by Mr. Loew, or of the *Tipulidæ* by me. Let the series of these monographs begin with the larger forms and the more numerous families, as the *Tabanidæ*, the *Asilidæ*, the *Stratiomyidæ*, the *Bombylidæ*, the *Syrphidæ*, the *Empidæ*, etc. Such a basis being laid with those families, the study of which is comparatively easy, the difficult ones, as the *Chironomidæ*, *Culicidæ*, and the numerous groups of the *Muscidæ*, will follow. The study of these difficult families must be the work of specialists. Mr. Winnertz of Crefeld, Prussia, devoted more than twenty-five years to the study of the genus *Ceratopogon*; the genus *Cecidomyia* and the family *Mycetophilidæ*. During that long period of patient collecting, drawing and describing, he published only four monographs of moderate size. And it is certain that without such patient collecting, drawing and describing for a number of years, any monograph of such genera as *Ceratopogon* or *Sciara*, would have been worthless. Diptera are not like the other orders of insects, where a very superficial com-

parison of two specimens enables one in most cases to decide whether they belong to the same species or not. Each family of Diptera requires an especial study, and a dipterologist may be very well versed in some families without being able to express any opinion with regard to questions concerning others.

The nature of specific characters and their relative importance is different in every family. In one genus for instance, the hairs around the mouth afford a good specific character, as their color is constant; but these same hairs would be useless as a leading character in the next family, because that coloring is variable. In one genus the venation is constant, in another it is variable. A general entomologist can, in most cases, determine tolerably well a box of unnamed Coleoptera, if he has a well-determined collection for comparison. Not so with Diptera. Excepting the larger and easily recognizable forms, it would be futile for a general entomologist to attempt a similar effort with unnamed Diptera. Nay a general *dipterologist* would be unable to do it; under such conditions he would be competent to name the species of those families only, of which he had made a special study previously.

Specialization is, therefore, the motto of dipterology. Amateurs may collect and name Diptera, but let them not publish anything, until they have chosen some single family and nearly exhausted it by study and collecting. If they try such a course they will find that the exhaustive study of a single family is far more remunerative, both in pleasure and in usefulness, than the random descriptions of numerous new species, prolific of hearty maledictions on the part of the future monographists.

As an especial desideratum in the present state of American dipterology, I would suggest the preparation of a new catalogue of the hitherto published American Diptera. Since the publication of my catalogue in 1858,

more than a thousand new species have been described. At the same time, the comparison of the descriptions of the formerly described species has revealed numerous synonymes and errors of location. The catalogue of 1858 was simply a list, a mere compilation; the new one should be, for some families at least, a synonymical catalogue. If any one should attempt the useful work of the preparation of such a catalogue, it would be necessary for him to put himself in communication with Mr. Loew, who will be able to communicate a large number of data in the way of synonymes and corrections.

Another work, very desirable for the future progress of American dipterology, would be the preparation of a supplement to Mr. Loew's "*Centuries of North American Diptera*," enabling entomologists to use them with more facility. It should consist of analytical tables for determining the species of the larger genera, and of synonymical and other remarks, which must have suggested themselves to the author in preparing the descriptions. The aim of the publication of the *Centuries* undoubtedly was to anticipate bad describers, and to shut them out, if I am allowed to use this expression, by the issue of a large number of species belonging, for the most part, to the more common forms of the North American fauna. These species have now the advantage of being described by a dipterologist of eminence, of being placed in the proper genera, and of having new genera adopted for them, wherever it was necessary. But it must be acknowledged at the same time, that unless the *Centuries* are provided with a Supplement such as I suggest, they will deter beginners from the study of Diptera, and therefore arrest the progress of dipterology in America. As a matter of course, the Supplement I propose ought to be written either by Loew himself, or by some one under his immediate supervision.

THE publications on North American Diptera during the year 1868, are confined, as far as I am aware at present, to the fourth volume of the "Monographs of North American Diptera," issued early in January, 1869, and to the publication, in the "Transactions of the American Entomological Society," July, 1858, of the description of *Aedes cinereus*, n. sp. Both were written by me.

The Preface to the fourth volume of the *Monographs* explains its contents as follows :

"The present volume contains the first part of a Monograph of the North American *Tipulidæ*, that is, the *Tipulidæ brevipalpi*, the *Cylindrotomina*, and *Ptychopterina*. The *Tipulidæ longipalpi* are reserved for another volume.

"The ground covered in this monograph is the same as that of my former essay : 'New genera and species of the North American *Tipulidæ* with short palpi, with an attempt at a new classification of the tribe (in the 'Proceedings of the Academy of Natural Sciences of Philadelphia,' 1859), that is, it embraces all the known North American species, at the exclusion of those from the West Indies and Mexico. But if, instead of the sixty pages which the above-mentioned essay contains, the present volume fills nearly three hundred and sixty, this is owing partly to the increase of materials at my disposal, partly to the much greater development which I have given to the paragraphs concerning the classification. When, in 1859, I adopted an entirely new distribution of the *Tipulidæ*, I considered it as only provisional, because it was based exclusively on North American species. Since then, however, it has proved available in a more general application, and has been introduced by Dr. Schiner in the European fauna. I have therefore deemed it necessary to explain my views on that distribution with more accuracy, and have treated the classification with almost as much detail as if I was writing, not a faunistic but a general monograph of the family."

The volume contains the description of one hundred and forty-two species, only seventeen of which have been described by previous authors. Ninety were described by me in previous publications and thirty-five are published now for the first time.

The new genera introduced are :

Trochobola (Section *Limnobina*); (Syn. *Discobola* O. S. in Proc. Ent. Soc. Philad., 1865, p. 226; type *T. argus* Say.)

Orimarga (Section *Limnobina anomala*); type *O. alpina* Zett., from Europe. (The genus has not been found in America yet.)

Atarba (Section *Limnobina anomala*); type *A. pictipennis*, n. sp., from the United States.

Empeda (Section *Eriopterina*); type *E. stigmatica*, n. sp., from the United States.

Sigmatomera (Section *Eriopterina*); from Mexico.

Utomorpha (Section *Limnophilina*); type *U. pilosella* O. S., from the United States.

Plectromyia (Section *Amalopina*); type *P. modesta*, n. sp., from the United States.

Raphidolabis (Section *Amalopina*); type *R. tenuipes*, n. sp., from the United States.

The monograph is provided with tables, facilitating the determination of the genera and species. Two plates and several wood-cuts illustrate the venation of forty-four wings; two other plates the structure of the forceps at the end of the abdomen of the male.

E. T. COX (Proceedings Boston Soc. Nat. Hist., xii) gives an account of an Ephydra and Eristalis, found in the brine pools of the Equality Salt Works, Gallatin Co., Illinois.

A. S. PACKARD, Jr. remarks that he had found a Chironomus living in the sea water in Salem Harbor, and two other species of Ephydra, one from probably brackish water in Labrador, and the other from the shores of Narraganset Bay, communicated to him by Dr. T. d'Oremieulx. The Ephydra and puparium, and Chironomus from Salem Harbor, are noticed and figured in the "American Naturalist," p. 277.

L. TROUVELOT notices in the "Proceedings of the Boston Soc. Nat. Hist.," xi, p, 437, the occurrence of a larva of an *Cæstrus* beneath the skin on the under side of the neck of a rabbit.

COLEOPTERA.

THE contributions made to our knowledge of the Coleoptera of temperate North America, during the past year, have been neither numerous nor important. The systematic work of classification, and the labor of describing the heretofore unnamed forms are still performed by but very few. From the great interest taken by many collectors in having their species correctly named, and from the gradually increasing recognition by agriculturists of the necessity of accurate scientific knowledge, by which they may distinguish their friends from their foes, we augur a better future, and think the time is not far distant when both observers and investigators will increase in number and ability.

Economic entomology has been greatly benefited by

the establishment of the "American Entomologist," a monthly journal published at St. Louis, in which much science is conveyed to the public in a popular and agreeable form, and numerous errors of quackery and tradition fearlessly and effectually exposed. May its success be great and enduring.

The notes on Coleoptera contained in the numbers published in 1868, are as follows :

In an exhaustive monograph on "Potato-bugs," the following species are figured, described, and their habits carefully noted, on pages 22-26: *Baridius trinotatus* Say, *Lytta vittata* Fabr., *L. cinerea* Fabr., *Macrobasis Fabricii* Lec., *L. marginata* Fabr., *L. cinerea* Forster, *Lema trilineata* Oliv., *Haltica cucumeris* Harris, and on page 42, *Doryphora 10-lineata* Say.

On p. 32, *Euryomia melancholica* is mentioned as attacking pears, probably for the exuding juice, as the fruit (p. 111) appears to have been previously bored by other insects. On p. 51, a new enemy of the larva of the plum Curculio is mentioned, in the larva of *Chauliognathus Pensylvanicus*, which preys upon them.

By observation it has been ascertained (p. 76) that *Oncideres cingulatus* girdles the twigs of several genera of trees, a fact of some importance, as no phytophagic varieties have yet been noticed.

The "Canadian Entomologist," an excellently conducted but smaller publication, of less popular scope, has also been established during the past year, and contains notes on various luminous Coleopterous larvæ. It seems to me that we must be prepared to find in the Serricorn series more numerous examples of this singular power than have yet been suspected; and in fact, when we reflect that in one of the lower terms of the series, the Lampyridæ, the phenomenon is frequent in all stages of development, while in the higher term, the Elateridæ, it

is manifested in the imago of but one genus, it is reasonable to suppose that the larvæ of allied genera will be found to be luminous, and in the course of development this mark of inferiority will disappear in the perfect insect. Such in reality must be the case, as there are already on record two examples of larvæ,* resembling, in the distribution of the luminous spots, those described by Baron Osten Sacken (Proc. Ent. Soc., Philad., i, 125, pl. 1, fig. 8), and supposed by him and myself to belong to a species of *Melanactes*, a genus of Elateridæ thus far confined to North America, as *Pyrophorus* is to the warmer regions of our continent.

The luminous power of the larger larvæ described by Baron Osten Sacken was not at that time fully ascertained by him, but has since become familiar by the discovery of several living specimens in different parts of the country. One was sent me by mail from Indiana, but it died before transforming into the pupa: the light emitted was of a beautiful emerald green color, in spots, on each side of every segment.

A very valuable "First Annual Report on the noxious insects of Illinois," by Benjamin D. Walsh (Chicago, 1868), records the fact that the pulp of the grape is attacked, and the grape crop sometimes much injured by a small Curculionide, *Cœliodes inæqualis* Say. On another page, Mr. Walsh points out the differences between the "phytophagic species" of *Conotrachelus nenuphar*, as it affects the species of plum or walnut, which consist in size, and in the color of the transverse band of pubescence of the elytra: those which infest the walnut are much larger, and the band is ochreous yellow; those of the plum are smaller and the band is white.

* One in India, vide Trans. Ent. Soc., London, 3rd ser., ii (Proceedings), 101, and the other in Brazil, named provisionally by Mr. Andrew Murray, *Astraptor illuminator*, Jour. Linnæan Soc., London, Zool. x, 74, pl. 8.

There is an analogous difference in races of *Saperda candida* Fabr., to which my attention was first called by my esteemed correspondent, Charles Sonne, of Chicago, which attacks the apple and its nearest native ally, the *Cratægus*; those from the cultivated trees have the elytral vitta uniform, while in those which infest the *Cratægus* there is a dark spot in the middle of the vitta near the base: of this race there are five males before me, but I have not yet seen any female.

In the same report there is an account of the habits of *Anthonomus prunicida* Walsh, the larva of which attacks the kernel of the plum; a specimen kindly sent me by the author, appears to be the same as *A. scutellaris* Lec. (Proc. Acad. Nat. Sc., 1858, 77), though larger than the other specimens in my collection.

In descriptive and systematic entomology the following publications on Coleoptera have appeared in the "Transactions of the American Entomological Society," the second volume of which was commenced in May, 1868. The first two are by the writer of the present review:

"New Coleoptera collected on the Survey of the Union Pacific Railway, E. D., from Kansas to Fort Craig, New Mexico," containing descriptions of twenty-seven new species; one of them, *Toposcopus Wrightii*, is the type of a new genus representing on this continent the European *Evaniocera*, but differing by the eyes being divided, and also by the form of the claws, which are not pectinate, but bifid at tip and feebly toothed as in *Ancholæmus* Gerst.; there are other minor differences in the form of the antennæ, the head, and the prothorax, for which the student may refer to the original memoir.

The only other points worthy of mention at the present time are, the remarkable number of species of *Ochodæus*, the characters of which are exhibited in a synoptic table:

they are ten in number, six being new; and the discovery of a species of *Anomala* (*A. cavifrons*), which belongs to the division *Rhombonyx* Hope, having all the tarsal claws acute and undivided: this group was known previously as occurring only in Europe and Siberia.

“Coleoptera of the United States Coast Survey Expedition to Alaska, under charge of Mr. George Davidson,” containing descriptions of six new species of various genera, and a synoptic table of the fifteen species of *Cychrus* known to inhabit the Pacific slope of the United States. The six new species are, *Promecognathus crassus*, *Simplocaria inflata*, *Throscus validus* and *sericeus*, *Pactopus* (n. g.) *Hornii*, a Eucnemide allied to *Throscus*, but having fusiform instead of clavate antennæ, and *Exopsoides incisa*, the last genus being new to our fauna.

“Catalogue of Coleoptera from south-western Virginia,” by George H. Horn, M. D., containing descriptions of *Anophthalmus pusio*, *A. pubescens*, *Anillus fortis*, *Atinus* (n. g.) *monilicornis* (*Ctenistes* mon. Brendel, Proc. Ent. Soc., Philad., 1866, 190), a Pselaphide with two equal claws, and moniliform antennæ, remarkable for the very small size of the maxillary palpi. It represents in our fauna the European genus *Chennium*. Dr. Horn notes the occurrence in Canada and in Tennessee of the European *Necrophilus subterraneanus*, a very remarkable fact in geographical distribution, unless accidentally introduced in earth around the roots of imported trees.

“New species of Coleoptera from the Pacific slope of the United States,” by George H. Horn, M. D. This memoir consists of descriptions of twenty-four new species all of great interest, and comprising *Omus submetallicus*, n. sp., and the following genera new to our fauna, *Pachyteles testaceus*, *Eutheia colon*, *Triarthron Lecontei*, *Xanthopygus cacti*, *Sphærius politus*, *Mecynotarsus delicatulus*, *Prostenus Californicus*. The genus *Languria*

(*convexicollis*) is also indicated for the first time from the western slope of the continent, and the Mexican *Aulicus Nero* Spin., is added to our fauna.

The following new genera are characterized: *Rhinoplastia*, an CEdemeride with a rather prolonged muzzle, related to the European *Chitona*, but differing by the entire mandibles, and by minor characters in the form of the eyes and mentum. The species *R. ruficollis* is brassy black, with rufous prothorax: *Poreospasta*, a Meloide intermediate between *Meloë* and *Henous*, with elytra not imbricate and contiguous only along the anterior third of the sutural margin, but differing from both as well as from *Nomaspis*, which has a similar conformation of elytra by the claws being not cleft, but toothed as in *Megetra* and *Cysteodemus*.

"Synopsis of the Scolytidæ of America, north of Mexico, by C. Zimmermann, M. D., with Notes and an Appendix by J. L. LeConte, M. D." This paper contains extracts from the MSS. of the late Dr. Zimmermann, with descriptions of other species not contained in his collection, which were accessible to the editor. In the extracts from the MSS. there are described eighteen previously known and eleven new species: the Appendix contains in addition nine species of *Platypus*, cited from the admirable monograph of Dr. Chapuis, twenty-eight described, and thirty-seven new species, all of which have been subjected to examination, while fourteen described by other authors remain unknown or unrecognized. This memoir is worthy of the attention of arboriculturists, as it will enable them to identify the species of this most pernicious family which attack their trees, and thus to make reliable observations upon their habits for future use. The paper contains descriptions of fifty-five recognized, forty-eight new, besides the fourteen unrecognized; or a total of one hundred and seven species of this family, a much larger

number than was supposed to exist in our territory. Several new genera are established in this memoir, the characters of which cannot here be detailed.

"Notes on insects bred from the Prickly Ash (*Xanthoxylon Americanum*), by Henry Shimer, M. D.," in which is described *Leiopus xanthoxyli*, a new species, and the frequent occurrence of *Læmophlæus adustus* Lec., and *Sacrum fasciatum* on the bark is noted. *Micracis suturalis* Lec., a Scolytide described in the preceding paper is also parasitic on this tree.

"A brief extract from notes on Grape-vine borers," by Dr. Shimer, mentions the frequent occurrence of *Amphicerus bicaudatus* (*♂ Apate bic.* Say, *♀ aspericollis* Germ.), and of *Lyctus opaculus* Lec.

Dr. Horn notes in the "Proceedings" Ent. Soc. (p. 10), the very singular conformation of the prosternum of *Cossyphus*, in which the very small front coxæ are enclosed behind by the side pieces, and the prosternum is thus separated from articulation with the mesosternum as in the Rhynchophora.

The "Proceedings of the Academy of Natural Sciences, of Philadelphia, for December, 1868, contain the following memoirs by the writer of this article :

"Analytical table of the species of *Baridius* inhabiting the United States." The characters of twenty-eight different species are given.

"The Gyrinidæ of America, north of Mexico," containing *Dineutus*, seven species; *Cyrinus*, twenty-three species; and *Gyretes*, two species.

"Notes on the species of *Agonoderus*, *Bradycellus* and *Stenolophus*, inhabiting America, north of Mexico:" of the first genus, eleven species; of the second, twenty; of the third, twenty-one species are briefly characterized.

Before closing this brief report it may be useful to invite the attention of persons residing in the more dis-

tant parts of our country, who are inclined to aid systematic investigators in their difficult labors (without which intelligent observations of habits, the whole science of economic entomology, and its practical applications become impossible), to the great necessity of having increased collections from Texas, New Mexico, Arizona, Utah, Colorado, and the whole of the mountain and desert regions of the middle part of the continent. The wonderful fertility of the Pacific slope in extraordinary forms is also by no means exhausted: every small collection made, even by inexperienced persons, or those feeling but little interest in science, contains a large proportion of undescribed species. How many then yet remain to reward the labor of the patient and zealous collector! Collections from Nevada and Utah are particularly needed, to perfect our knowledge of the principles of geographical distribution; the materials thus far obtained from those regions being very meagre.

THE EDITORS OF THE AMERICAN NATURALIST, ii, in the Entomological Calendar, pp. 110, 163, 219, 331, refer mostly to the habits of beetles, and figure an unknown Carabid larva, and the larva and pupa of *Pissodes strobi* Peck.

Rev. S. LOCKWOOD (l. c., p. 186 and 441) gives (with figures of the larva and adult) an account of the habits of *Cotalpa lanigera* (Linn.)

A. S. PACKARD, Jr. (l. c., pl. 4, 5) describes and figures the adult *Meloë angusticollis*, the different stages of *Stylops Childreni* Westw., and (pl. 4, fig. 16) a Staphylinid larva.

G. A. PERKINS (l. c. p. 422) gives an account, with a figure, of the *Pyrophorus noctilucus* (Linn).

EDITORS AMERICAN NATURALIST figure the larva of a species of *Photuris*, the female of *Lampyris*, from Zanzibar, the larva of *Melanactes*, and a singular larva allied to *Drilus*. On p. 441, they figure *Anthrenus varius* and its larva and pupa; and the larva of *Ptinus fur* Linn.

HEMIPTERA.

THE dawn of a new era in Entomology assures the lover of progress that the long neglected "Bugs" may begin to assert their rights. Many years have elapsed without the establishment in North America of those collections which are indispensable to the student who aims to acquire a knowledge of the Hemiptera.

The beetles and the butterflies early began to attract attention, and many years ago extensive collections were formed, sufficient to enable a satisfactory if not exhaustive study of the types peculiar to this country. Not so with the Hemiptera. The only collections of them known thirty years ago were those of Mr. Say and Dr. Harris. Both of these gentlemen were zealous and indefatigable in their endeavors to obtain new species; but of the collection of the former, not one specimen now remains to mark its presence, while of the latter, probably five hundred species would fully cover its extent. It is true that collectors were then much less numerous, and the facilities for interchange of specimens fewer than at the present time, but the "Poor Bugs" were generally neglected just as they have been until very recently. With the extension of railroads and the sending out of expeditions, an increased desire to become acquainted with the productions of other regions has been evinced, and now collectors are found scattered over many parts of the country. By attending to one or two orders of insects at a time, the fauna of a section may be searched out and made known, and thus in a short time sufficient materials would be amassed for a pretty full picture of the geographical distribution of the species.

The Hemiptera, although not so numerous as either the Coleoptera or Diptera, constitute a large order, and we may safely conclude that not one-third of the species

have yet been discovered. For our own part, after laboring over a period of more than twelve years, only now do we begin to realize our desires, in having a collection sufficiently extensive to furnish a satisfactory idea of the characters comprehended in some of the groups.

Much remains to be done; hundreds of new species are to be described; their habits observed and recorded; the development during the different stages to be traced; the forms of the egg and young to be noticed, and the places which they frequent to be made known.

The region of the northern Atlantic states, where the greatest amount of collecting has been done, still furnishes new forms, and to the ardent collector there is not a section of North America which will not furnish strange species.

The species of North America have been described by Mr. Thomas Say, whose works were collected and published a few years ago by Dr. John L. LeConte. Prof. S. S. Haldeman described a few in Stansbury's Expedition to the Great Salt Lake, Utah, and in the "Proceedings of the Philadelphia Academy of Natural Sciences," 1845. Dr. T. W. Harris noticed the habits of a few species in his "Insects injurious to Vegetation," Boston, 1862. Dr. A. Fitch described a considerable number in the different volumes of the New York State Agricultural Society, and in 1851 in the "Fourth Annual Report of the State Cabinet of Natural History," Albany, N. Y. An extensive manuscript, in which he arranges the Homoptera belonging to the cabinet of Dr. T. W. Harris, is now in the possession of the Boston Society of Natural History, but it has been superseded by the labors of foreign entomologists. Our species have attracted the attention of the entomologists of Europe, and many of them are described in their works: Amyot and Serville in their "*Histoire Naturelle des Hemiptères*," Paris, 1843; Dr.

V. Signoret in the "*Annales de la Société Entomologique de France*," 1853-68; Dr. Carl Staal in the Swedish Journals, in the "*Berliner Entomologische Zeitschrift*," in the "*Stettiner Entomologische Zeitung*," and in the Voyage of the Frigate *Eugenie*. Other species will be found described by Mr. F. Walker in the British Museum Lists of Hemiptera and Homoptera; and Dr. Gustav Mayr notices a few in the "*Verhandlung Kais. Koenig. Zoologisch-Botanischen Gesellschaft in Wien*." A few species have, also, been characterized by me in the "Proceedings of the Philadelphia Academy," and in the "Proceedings of the Philadelphia Entomological Society."

For several years I have been amassing materials and writing descriptions of all the genera and species that I could obtain, with the intention of publishing a work which should include all the known forms of North American Hemiptera. Notwithstanding the indispensable assistance which I have received from the Smithsonian Institution and numerous kind friends, at least seventy species, described by Mr. Say and collected in Southern Indiana, have not yet been rediscovered, and hence they cannot be referred to modern genera. Such is also the case with a number of species described from some of the Southern States, such as Georgia, Florida and Louisiana.

Skilful collectors are needed in every part of the country to search beneath the loose bark of trees, to dig into the decaying logs, to examine the under sides of, and beneath, stones, sticks, logs and rubbish in the spring, summer, autumn, and even in the moderate weather of winter.

In spring, summer and autumn, the roots of bushes, grasses, weeds, &c., in damp or sandy places should be examined for the small ones. Hold an open, inverted umbrella under the limb of any kind of bush or tree and give the limb one or two sudden strokes with a cane—sweep the bushes, undergrowth, weeds and grass vigor-

ously with a strong scoop-net fastened to a handle — examine the ground in salt and fresh-water marshes and meadows — use a strainer scoop-net in the water of ponds and streams, scathing the banks beneath the surface as well as the bottoms, and even scoop out an inch or more of the mud — search the under side of leaves of vines and examine the corollas of flowers. All these methods will furnish different kinds, and the patient explorer will find himself enriched with treasures which may well fill him with surprise and delight.

It may not be amiss to remark, for the benefit of those who may not be familiar with the Hemiptera, that they are usually similar to beetles in their compactness of form, but they have a long, jointed beak projecting from the head running back between the pairs of legs, and the wing-covers are membranous at tip and overlap at that part. In some, such as the Harvest-flies (*Cicadidæ*), these wing-covers are like the wings — membranous and transparent — and slant each side like the roof of a house.

The best months in which to collect are May, June, August and September, in most parts of the country, while in the South the season begins earlier and continues later.

The mountainous regions of the country have not yet been examined by collectors, and our collections are sadly deficient in species from all parts of the South and Southwest. Ohio and Indiana have not yet furnished their quota, and hundreds of new species will reward the explorer in Kentucky and Tennessee.

Canada and British America should furnish many species identical with or similar to those of the North of Europe. All the varieties of mosses, lichens, and bushes, have species peculiar to them, while the loose bark of birches, pines, and the damp marshes adjoining streams and the sea, teem with certain small forms.

One of the families most largely represented in America is that of the Capsina. Already more than two hundred species of them have been collected, and every small lot from a strange locality exhibits new species. Many of them are of small size, but the greatest variety obtains both in colors and in structure. Few families will reward the observer with so many new species, or offer him such variety of structure for the exercise of his ingenuity.

The study of the Hemiptera opens a rich mine of information, full of enjoyment to the ardent spirit that engages in it. The tedium of a dull hour may be whiled away, or the delights of a summer stroll in the country may be greatly enhanced by an acquaintance with these insects. None of the other orders offer so great a variety of forms, and only the butterflies rival them in the brilliancy of their ornamentation.

The following is a list of all the papers describing North American Hemiptera which I know to have appeared during 1868:—

C. J. E. HAGLUND (Hemiptera Nova, Stettiner Entomologische Zeitung, 150) describes *Pelidnocoris Stalii*, from Mexico; *Ptilarmus fasciatus*, from Mexico; *Peromatus robustus*, from Mexico; *Protenor Belfragei*, from the United States. This last is a common species in Illinois, and it is found in New England and Maryland.

H. SHIMER (Trans. Amer. Ent. Soc., 281) describes a new Aleurodes, *A. asarumis* Shimer; also a new genus of Aphidæ, p. 283; *Hamamelistes cornu* Shimer; and *H. spinosus* Shimer. Farther on, at p. 361, he gives "Notes on the Apple Bark-louse, *Lepidosaphes conchiformis* (Gmelin).

Dr. SIGNORET (Annales de la Société Entomologique de France. Series IV, Tome 8, 397-98, "Monographie des Aleurodes,") embodies the descriptions of *Aleurodes abutilonea* Hald.; and *A. corni* Hald., without being acquainted with the insects themselves.

ORTHOPTERA.

THE SMITHSONIAN INSTITUTION, in their Miscellaneous Collections, have published a "Catalogue of the Orthoptera of North America," by S. H. SCUDDER, 8vo, pp. xx, 89.

In this work the author furnishes an alphabetical index to all Orthoptera described from North America or the West Indies previous to 1867; no synonymes are given, a list of authorities is prefixed and a tabular view of an Orthopteran system, including only the genera referred to, is appended.

S. H. SCUDDER (Proc. Bost. Soc. Nat. Hist., xi, 390; Ent. Notes, i, 5) endeavors to show that the saltatorial rank higher than the non-saltatorial Orthoptera, because the latter, as proved by Graber's researches, retain the embryonic position of the wings throughout life.

S. H. SCUDDER (Proc. Amer. Assoc. Adv. Sc., xvi, 151-3) compares the Orthoptera of Europe with those of North America, and especially with those of New England; the number of species of each family found in northern, middle and southern Europe, and the proportion they bear to the species found on the whole continent, is stated and compared with the number known to occur in New England; the article closes with some special statements concerning the genera peculiar to, or richly represented in, either country.

S. I. SMITH (Proc. Portland Soc. Nat. Hist., i, 143-151) enumerates thirty-eight Orthoptera from the State of Maine, revising the synonymy of some of the species, describing one new species, *Pezotettix manca*, and several previously known (all Acrydii), with many careful measurements.

S. H. SCUDDER (Proc. Bost. Soc. Nat. Hist., xi, 306-13; separate pp. 1-7; see also the Songs of the Grasshoppers, Am. Nat., ii, 113-20) gives some Notes on the stridulation of some New England Orthoptera. In this paper the author explains his methods of observation and describes the different kinds of stridulation among Orthoptera; Gryllides and Locustariæ stridulate by shuffling the bases of the tegmina together; some Acrydii

scrape the hind thighs upon the outer surface of the tegmina while at rest; others stridulate during flight, rubbing together the tegmina and thickened veins of the anterior edges of the wings; he attempts to reduce to articulate sounds and musical admeasurement the various notes produced during stridulation, allowing a bar of music to represent a second of time and to be occupied by the equivalent of a semibreve.

EDITORS AMERICAN ENTOMOLOGIST (Amer. Ent., i, 53) bring evidence of the unusual abundance of certain Orthoptera during the year, instancing particularly *Acheta abbreviata* and *Ædipoda Carolina*.

GRYLLIDES.

EDITORS AMERICAN ENTOMOLOGIST (Amer. Ent., i, 38) give figures of both sexes of *Æcanthus niveus*, and remark that they sever grapes from the branches and by depositing their eggs in the pith of certain plants, cause the death of the plant above the point punctured.

W. SAUNDERS (Can. Ent., i, 40) also mentions the injury done to raspberry canes and plum twigs by the incisions of *Æcanthus niveus*, while ovipositing.

S. H. SCUDDER (Proc. Bost. Soc. Nat. Hist., xi, 384-387; Ent. Notes, i, 1-4) divides the mole crickets into two genera, *Scapteriscus*, including the didactylate, and *Gryllotalpa*, the tetradactylate species. He also discusses the bearing of their relations of structure and geographical distribution to the question of the origin of species, taking ground against the derivative theory.

S. H. SCUDDER (Proc. Bost. Soc. Nat. Hist., xi, 307-9; Ent. Notes, i, 1-4) describes the note of *Gryllus neglectus* (cr-rur-ri or crrrri), *Nemobius vittatus* (ru or rruu), and *Æcanthus vittatus*; he also mentions the want of synchronism in the songs of different individuals of *Gryllus neglectus* chirping within sound of each other.

S. H. SCUDDER (Proc. Bost. Soc. Nat. Hist., xii, 139-143) describes a first decade of Orthoptera, all belonging to the Gryllides. They are *Tridactylus major*, from Bengal; *Trigonidium pacificum*, from the Hawaiian Islands; *Hapithus quadratus*, from Cuba and Texas; *Eneoptera annulata*, from Central America; *E. unicolor*, from Manila; *E. obscura*, from Old Calabar; *Platydictylus bicolor*, from Bogota; *Mogoplistes occidentalis*, from Cape St. Lucas; *Cycloptilum*,* nov. gen., allied

* This name has been preoccupied by Guérin. The genus may be called *Gryllopsis*, and the species *G. squamosa*. [S. H. S.]

to Ornebius, founded on a single species, *C. squamosum*, from Texas; and *Nemobius circumcinctus*, from Orizaba.

S. H. SCUDDER (Proc. Bost. Soc. Nat. Hist., xi, 402-3; Ent. Notes, i, 8-9; Amer. Nat., ii, 390) describes *Archegogryllus priscus*, a fossil insect from the coal formation of Ohio. One broken hind leg and a fragment of a wing were found; the leg was noticeable in having the tibia furnished with several large prominences, while the femur was smooth.

S. I. SMITH (Proc. Portland Soc. Nat. Hist., i, 144) records *Gryllus luctuosus*, *G. neglectus*, *Nemobius vittatus*, and *N. fasciatus*, from Maine.

LOCUSTARIÆ.

EDITORS AMERICAN ENTOMOLOGIST (Amer. Ent., i, 57) describe the eggs of an unknown species of *Orchelimum*, found embedded near buds, between the bark and wood of certain trees. They also relate an instance of *Gordius aquaticus* found in the abdomen of *Orchelimum gracile*.

H. HAGEN (Proc. Bost. Soc. Nat. Hist., xi, 434) mentions the injury resulting from punctures made in the stem of the cotton plant by some Orthopteran while inserting its eggs; the insect was reported to be a Locustarian.

S. H. SCUDDER (Proc. Bost. Soc. Nat. Hist., xi, 435) stated that he had received specimens of the insect reported to have done injury to the cotton plant; it was an undescribed species of *Xiphidium*.

S. H. SCUDDER (Proc. Bost. Soc. Nat. Hist., xi, 309-312) shows that the day song of some Locustarians differs from that of the night, and sets to music the notes of *Phaneroptera curvicauda* and *Orchelimum vulgare*; he also makes brief mention of the song of *Xiphidium* and of *Conocephalus robustus*.

S. I. SMITH (Proc. Portl. Soc. Nat. Hist., xii, 145) records *Ceuthophilus maculatus*, *Phaneroptera curvicauda*, *Conocephalus ensiger*, *Xiphidium fasciatum*, *X. brevipenne* and *Orchelimum vulgare*, from Maine. He captured one specimen of *C. ensiger*, with its ovipositor forced down between the root-leaves and stalk of *Andropogon*.

ACRYDII.

EDITORS AMERICAN ENTOMOLOGIST (Amer. Ent., i, 73-76) give an account (with a wood-cut) of the history and devastations of *Caloptenus spretus*, laboring to prove that it is a strictly alpine insect, that its natural habitat is in the alpine regions of the Rocky Mountains, and that it can never become a permanent denizen of Kansas, Nebraska, Missouri or Iowa.

G. LINCECUM (Proc. Bost. Soc. Nat. Hist., xi, 400; Amer. Nat., ii, 390) describes the ravages of grasshoppers (*Caloptenus spretus*) in Texas.

M. C. NICKERSON (Amer. Ent., i, 27) relates the injury done to the crops of western Iowa, during 1867 and 1868, by *Caloptenus spretus*; he adds that they have left behind them a grass (which the Editors state to be *Vilfa vaginaeflora*) hitherto unknown in that region, but allied to the Buffalo-grass of the region farther West, from whence the grasshoppers came.

F. G. SANBORN (Proc. Bost. Soc. Nat. Hist. xi, 326; Amer. Nat., ii, 221-2) describes a supposed mode of exuviation by the young of some species of *Ædipoda* and *Caloptenus*, as shown by their cast-off integuments found impaled on needles of pine or blades of grass.

S. H. SCUDDER (Proc. Bost. Soc. Nat. Hist., 312-313) states that the stridulation of many Acrydians is more rapid in sunshine than in shade; he presents in detail the notes of *Stenobothrus curtipennis*, *S. melanopleura* and *Arcyptera lineata*, and gives a short notice of the noise made during flight by *Tragocephala viridifasciata*, *Ædipoda sordida*, *Æ. verruculata*, *Æ. æqualis*, and *Æ. Carolina*. *Æ. pellucida* produces no sound whatever.

S. H. SCUDDER (Proc. Bost. Soc. Nat. Hist., xii, 87-88) gives a short notice of the devastating grasshoppers of the United States: *Caloptenus femur-rubrum*, east of the Mississippi and in the great valley itself; *C. spretus*, west of this to the Rocky Mountains; and a third, not yet determined, in the region west of the Rocky Mountains.

S. H. SCUDDER (Proc. Bost. Soc. Nat. Hist., xi, 436) states that in Texas the eggs of *Caloptenus spretus* hatched on the 19th of February.

S. H. SCUDDER (Proc. Bost. Soc. Nat. Hist., xii, 99) notices an hymenopterous parasite of the egg of *Ædipoda Carolina*.

S. I. SMITH (Proc. Portland Soc. Nat. Hist., i, 145-151) records the following species from Maine: *Choealtis conspersa*, with which he unites *Stenobothrus melanopleurus*. He gives a full description of this insect and of its method of laying eggs in holes bored for the purpose in decaying wood; *Stenobothrus curtipennis*, with which he unites *S. longipennis*, and gives measurements of many specimens; *S. maculipennis*, with which he unites *S. æqualis* and *S. bilineatus*, and gives many measurements; *Tragocephala viridifasciata*, with which he unites *T. infuscata*; *Arcyptera gracilis*, *Pezotettix glacialis*, taken at a height of about two thousand feet; *P. Manca*, nov. sp., from a similar altitude; *T. borealis*, of which a full description is given, also from the same altitude; *Caloptenus femur-rubrum*, *C. punctulatus*, which the author thinks will prove to be a variety of *C. femur-rubrum*; *C. bivittatus*, *Ædipoda Carolina*, *Æ. phænicoptera*, *Æ. rugosa*, *Æ. sulphurea*, *Æ. verruculata*, with which he unites *Æ. æqualis*; *Æ. pellucida*, *Æ. sordida*, *Tettix granulata*, *T. ornata*, *T. triangularis*, *Tettigidea lateralis*, *T. polymorpha* and *Batrachidea cristata*.

B. D. WALSH (First Ann. Rep. Nox. Ins. Ill., pp. 72-103) gives an extended account, with numerous extracts, from agricultural litera-

ture, of the recent devastations of *Caloptenus spretus*, in Texas, Missouri, and the lowlands of the Mississippi valley; he also quotes similar authority in proof of various irruptions of this insect in former years, and closing with much the same argument as that used by the editors of the "American Entomologist," tries to prove the alpine origin of this grasshopper, and the impossibility of its establishing itself permanently in the lowlands of the Mississippi River.

B. D. WALSH (Amer. Ent., i, 16) states that the grasshoppers were at least four or five times more numerous near Rock Island, Illinois, during 1868, than ever before, and that they consisted, in nearly equal numbers, of three species,—*Caloptenus femur-rubrum*, *C. differentialis*, and *Ædipoda Carolina*.

PHASMIDA.

EDITORS AMERICAN ENTOMOLOGIST (Amer. Ent., i, 58) give a popular account of *Spectrum femoratum*.

S. H. SCUDDER (Proc. Bost. Soc. Nat. Hist., xi, 325; Amer. Nat., ii, 221) mentions a case, in *Diapheromera femorata*, of the reproduction of a leg lost early in life; the whole leg was less than half an inch in length; the second tarsal joint was wanting, and the terminal joint was unprovided with claws or foot-pads; the animal had died during oviposition, the membrane between the oviduct and alimentary canal having been ruptured, and an egg nearly excluded from the anal aperture.

S. H. SCUDDER (Proc. Bost. Soc. Nat. Hist., xii, 99) gives the results of experiments made upon the reproduction of lost limbs in *Diapheromera femorata*. The leg is only renewed when cut off beyond the trochantro-femoral articulation, and after the occurrence of at least two exuviations; the growth takes place during exuviation; the growth of the metathorax is also very great as the insect leaves the egg.

MANTIDES.

EDITORS AMERICAN ENTOMOLOGIST (Amer. Ent., i, 59) give an account of the habits of *Mantis Carolina*.

A. S. PACKARD, Jr. (Proc. Bost. Soc. Nat. Hist., xi, 398) describes the development of the ovipositor and the parts corresponding to it in the male insect, reproducing Lacaze-Duthiers' figure of *Mantis tessellata*.

S. H. SCUDDER (Pal. Ill., iii, pp. 562-72) describes an insect from the coal-measures of Illinois, which he refers questionably to *Mantis*. Messrs. Meek and Worthen suggest that it may belong to the crustacean genus *Acanthotelson*.

BLATTARLÆ.

S. H. SCUDDER (Pal. Ill., iii, 568-70) describes *Myliacris anthracophila*, nov. gen., et. sp., from the iron-stone nodules and shale of the

Illinois carboniferous strata; the remains consist of an upper wing and the pronotal shield, figures of which are given.

S. H. SCUDDER (Amer. Nat., i, pl. 16) figures *Archimulacris Acadica* from the coal-measures of Nova Scotia.

S. I. SMITH (Proc. Portland Soc. Nat. Hist., i, 144) records *Stylopyga orientalis* and *Ectobia Germanica*, and also doubtfully, *Periplaneta Americana*, from Maine.

FORFICULARIÆ.

H. HAGEN (Proc. Bost. Soc. Nat. Hist., xi, 399-400; xii, 139) describes and figures, under the name of *Hodotermes Japonicus*, an insect which he afterwards states to be only an imperfect specimen of *Brachylabris maritima*.

S. I. SMITH (Proc. Portland Soc. Nat. Hist., i, 144) records *Labia minuta*, from Maine.

NEUROPTERA.

THE Neuroptera of North America have been long known to the entomologists of Europe. The museums there had been supplied with many of the larger and more attractive species by travellers and others who were struck by their appearance while traversing the different sections of this country.

Prior to 1861, Mr. Say and only two or three others of our entomologists seem to have been interested in these insects, and published the only papers that had appeared in the United States relating to them.

In Dr. Godman's "Western Quarterly Reporter," vol. ii, 1823, pages 160-165, Mr. Say published descriptions of forty-three species of the genera *Phryganea*, *Bætis*, *Chloeon*, *Myrmeleon*, *Bittacus* and *Perla*. The most of these being from the vicinity of the Ohio River, and from the North-west Territory.

A few others were described by him in the "Journal of the Academy of Natural Sciences," Philadelphia; but the most considerable of his papers on the Dragon-flies was

published after his death, in the eighth volume of the last named Journal, 1839, pages 9-46. It embraces descriptions and notices of forty-two species of Dragon-flies, and eight others of the genera *Bætis*, *Ephemera*, *Myrmeleon* and *Chrysopa*. Those papers were all afterwards reprinted in the collected edition of Say's works, published by Dr. John L. LeConte.

The species of *Chrysopa* and *Hemerobius* known to Dr. Asa Fitch, were described by him in a paper published in the Transactions of the New York State Agricultural Society, Albany, 1856.

The results of all these labors, however, have since been embodied in the "Synopsis of the Neuroptera of North America," by Dr. H. Hagen, published by the Smithsonian Institution in 1861. It contains descriptions of seven hundred and sixteen species from North America, with a list of the names of those from South America, as far as they were known. At present the number of species known from North America probably exceeds one thousand, and new ones are being continually discovered as the number of collectors increases.

Since the appearance of Dr. Hagen's work, an extensive memoir upon the species found in Illinois has been published by Mr. B. D. Walsh in the "Proceedings of the Philadelphia Academy of Natural Sciences," September, 1862, in which one hundred and ten species of the Termitina, Psocina, Perlina, Ephemerina, Agrionina, *Æschina* and Libellulina are noticed, and most of them described at full length, and critically compared with allied forms. Mr. Samuel H. Scudder describes and notices the Dragon-flies of the Isle of Pines, near Cuba, and also some new species from the White Mountains of New Hampshire, in the tenth volume of the "Proceedings of the Boston Society of Natural History," 1866. Farther notices of these species by the same author, and by Dr.

Hagen, may be found in the succeeding volume of the same work. In that volume will also be seen a short paper by myself, giving notices of my observations upon the Odonata of Hayti, made while I was engaged in collecting specimens in that island.

A gauze scoop-net will be found most useful in collecting all the Neuroptera during their flight. It should be light and with a long handle, such as is used for butterflies. Most kinds settle on the limbs, twigs and leaves of bushes and trees; they can be beaten off into an umbrella. They prefer wet spots and the vicinity of ponds and streams. In the early spring the Shad-flies swarm on bridges, or trees near water. Some live in brackish, others prefer fresh water. Ephemeriidæ rise from the waters in May and June in vast swarms; other species appear less numerous during all parts of summer. Termites, or white ants, affect decaying logs and trees, fences and the wood of houses, or burrow beneath stones. In the South they build large nests, usually of a rough, brown appearance. In the Middle and Northern States they swarm in May, or early in June. The Psocina are rich in species; they are rather small insects, many of them minute, but a careful search on the bark of limbs, twigs and trunks of trees, as well as on the leaves, will reward the collector with new and most elegant forms.

The large, brilliant, green Dragon-flies (*Cordulina*), as well as the yellow and brown striped *Gomphina*, having the eyes wide apart, will furnish new species in almost all parts of the country. In order to preserve specimens in the neatest manner, it is well to slip them, immediately when caught, into paper bags of suitable size; first taking care to lay back the wings so that they will be applied together, to prevent mutilation. These paper bags may be placed loosely on top of, or alongside of, each other in a box carried for the purpose. They can thus be taken

out at leisure, killed by applying a camel's-hair pencil dipped in sulphuric ether, chloroform or benzine, to the under side of the body, and then have the wings spread by placing them upon the setting boards. In most species the colors change soon after death, hence it is important to make short descriptions of the colors before killing the specimens.

In collecting *Cordulina* in order to describe them, it is important to obtain specimens of both sexes. The males are always the most characteristic, and may be readily distinguished from the other sex by the projecting pieces on the under side of the second segment of the abdomen. The attachments at the end of the abdomen are, also, always longer, and complicated in form.

H. HAGEN (Stettiner Entomologische Zeitung for 1868, 274-287) in a paper entitled "Odonaten Cubas," gives notes and observations upon the characteristics and habits of the following species of Dragon-flies from Cuba: *Libellula umbrata* Linn.; *Orthemis discolor* Burm.; *Macrothemis celeno* Selys; *Macrothemis pleurosticta* Burm.; *Macrothemis tenuis* Hagen; and *M. marmorata* Hagen.

H. HAGEN (Proc. Bost. Soc. Nat. Hist., xi, 289-294) on the Odonat Fauna of the Island of Cuba, notes the habits of sixty-six species of Dragon-flies of Cuba, and remarks upon the species described by Mr. Scudder, from the Isle of Pines and from the White Mountains.

H. HAGEN (Proc. Bost. Soc. Nat. Hist., xi, 372) describes a new Ephemerid from Cuba, *Lachlania abnormis* Hagen; also makes remarks upon two species of North American Psocina. He also, in the "Proceedings of the same Society," vol. 12, p. 136, states that his *Hodotermes Japonicus* is an immature female Forficula, with the last abdominal segment injured. "He thinks it proves that the wide separation of the Labidura, or Dermaptera, from other Orthoptera, so often insisted upon, is not founded in nature; and that the three families, Termitina, Blattina, and Forficulina, are coördinated, and very nearly allied."

A. S. PACKARD, Jr. (Proc. Bost. Soc. Nat. Hist., xi, 365) has an able article on the development of the Dragon-fly (*Diplax*)."

F. G. SANBORN (Proc. Bost. Soc. Nat. Hist., xi, 326) exhibited before the Boston Society of Natural History, a female specimen of *Libellula luctuosa* Burm., in which was observed an arrest of development in one of the front wings.

P. R. UHLER (Proc. Bost. Soc. Nat. Hist., xi, 295-298) has recorded observations respecting the habits and time of appearance of the following Dragon-flies of Hayti: *Anomalagrion hastatum* Hagen; *Agriion dominicanum* Selys; *Æschna virens* Ramb.; *Tramea insularis* Hagen; *Libellula umbrata* Linn.; *Libellula angustipennis* Rambur; *Orthemis discolor* Burm.; *Leptemis vesiculosa* Hagen; *Dythemis rufinervis* Hagen; *D. frontalis* Burm.; *D. pleurosticta* Hagen; *Mesothemis Mithra* Hagen.

S. H. SCUDDER (Proc. Bost. Soc. Nat. Hist., xi, pp. 298-300) offers farther remarks upon his species from the Isle of Pines, and from the White Mountains, giving notes and critical observations respecting *Dythemis rufinervis* (*Libellula vinosa* Scudd.) *Erythemis longipes* (*Macromia Cubensis* Scudd.); *Tramea insularis* Scudd.; *Mesothemis Gundlachii* Scudd.; *M. Pæyi* Scudder; *Cordulegaster lateralis*; *Cordulia eremita* Scudd.; *Cordulia forcipata* Scudder.

S. H. SCUDDER (Proc. Bost. Soc. Nat. Hist., xi, 401) describes a fragment of the wing of a gigantic Neuropterous insect, *Megathentomum pustulatum*, found in an iron-stone nodule in the Lower Carboniferous formation at Morris, Ill. He remarks that "Dr. Hagen has shown me in this wing some resemblance to the Phryganidæ, but I am inclined to believe it is distinct in its family characteristics from any known type of Neuroptera."

ARACHNIDA.

H. C. WOOD, Jr. (Communications Essex Inst., vi. 10) "On the Phalangeæ of the United States of America," gives a general account of this group, which he considers as a suborder. He "considers that the anterior legs of octopodous insects are really appendages of the cephalic segments," and that Owen's opinion that "the anterior pair of feet are modified labial palpi," is the correct one.

He redescribes *Phalangium dorsatum* Say (fig. 1); *P. vittatum* Say (fig. 2); and describes and figures as new, *P. nigropalpi*, from Pennsylvania; *P. exilipes*, from California and Nevada; *P. cinereum*, from northern New York; *P. calcar*, from south-western Virginia; *P. bicolor*, from Pennsylvania; *P. favosum*, from Nebraska; *P. verrucosum*, locality not given; *P. formosum*, from the District of Columbia and Pennsylvania; *P. pictum*, from Salem, Mass.; *P. maculosum*, from Pennsylvania and western Virginia; *P. ventricosum*, from Nebraska

and male from Pennsylvania; *P. grande* Say; *P. nigrum* Say (fig. 15), from Texas and Nebraska; *Acanthocheir armata* Lucas, from Mammoth Cave; *Gonyleptes ornatum* Say (fig. 16), from Texas.

B. G. WILDER (Amer. Nat., ii, p. 214) describes how spiders begin their webs.

J. H. EMERTON (Amer. Nat. ii, 476) gives an article on "The Habits of Spiders," with an original plate, illustrating the habits and structure of the *Epeira vulgaris* Hentz.

W. J. HAYS (Amer. Nat., ii, 559) notices the habits of a tick on the Moose (*Ixodes albipictus* Pack.), and the editors add a note, figuring the hexapodous young.

H. HAGEN (Amer. Nat., ii, 216) notes the habits of Chelifer, with a figure of *C. cancroides* Linn.

THE AMERICAN PSEUDO-SCORPIONS.

In nearly every class of animals there are groups or genera but little studied by naturalists, and never mentioned, though impossible to be set aside in a more systematical work. The Pseudo-scorpions, well known since the time of Aristotle as Book-scorpions, are among these Parias. We possess but the single descriptions or little local monographs for the species of Strasburg by Hermann; of England by Leach; of Germany by Koch, and of Dantzic by Menge; the first published sixty years, the last ten years ago. The fact that the Pseudo-scorpions are so constantly overseen becomes more curious, considering their very striking forms and habits. In many classes we find animals with an antediluvian type, and the observer is wondering to see these animals — apparently originated in an earlier period — still living. I think nobody will contest that the Pseudo-scorpion, with its heterogeneous form and its ferocious appearance, made ridiculous by its little body and helplessness, ranges among those animals. Possibly our living genera are not more than a deteriorated posterity; in fact the palæontological genus *Microlabis*, is many times larger than the living species, and its size much greater, according with its apparent menacing aspect.

The Pseudo-scorpion resembles much in its form the scorpions, though without a tail, so striking in those animals. The cephalothorax is united with an articulated abdomen, more or less trigonal, narrowed before; in two genera, quadrangular. At the sides of the thorax, near the mouth, are either two, or four, or no ocelli. The maxillæ are soft and used for sucking, very short, biarticulated, with a little basal joint and a chela with a little saw, or serrula. The palpi are exceedingly long, ordinarily longer than the body, and four-jointed. The basal joint is always the shortest, the second long, the third shorter, the last forming a didactylous chela or hand. The four pairs of legs are considerably smaller and furnished by two little claws, and between them is a little areola. Sometimes the hind legs have more thickened basal joints. The abdomen possesses eleven, seldom ten dorsal segments, but nine central segments. The whole body is mostly flattened and scattered with fine hairs, longer at the hands and the posterior margin of the abdomen. The sexual parts are open in the second ventral segment, together with the web-apparatus. The males often put out two long membranous tubes, similar to the fingers of a glove. The Pseudo-scorpions breathe by tracheæ, a striking difference from the breathing of the genuine scorpions, and the other lung-breathing Arachnida. But this difference does not seem important enough for separating the Pseudo-scorpions as a coördinate division.

The Pseudo-scorpions live beneath the bark of decaying trees, under stones, in dark and moist places in houses, between books, in natural history collections, and feed on mites and wood-lice. Their manner of motion is very slow, and they use apparently other insects, principally Diptera, Hymenoptera and Coleoptera, as an expeditious means for changing their lodging, for the purpose of finding elsewhere more and more convenient food.

Many cases are quoted by naturalists who have observed one or more chelifers, even ten, strongly attached with their hands to the legs of insects. The possession of a fly with two chelifers on the same leg — kindly communicated by Mr. T. Lyman — has induced me to look over the American species. A very interesting fact observed by Menge, is a chelifer in amber attached to the leg of an Ichneumon, showing the same manner of living in a much earlier period. The female bears the eggs, seventeen in number, in a little bunch under her abdomen near the opening of her sexual organs. Menge has observed the Pseudo-scorpions cast their skin in a like web, made for that purpose. The little animal remained five days in the web after its metamorphosis, and did not assume its dark colors for four weeks. Three months after it returned to the same web for hibernation.

A closer examination of the Pseudo-scorpions or Chernetidæ (Menge), known up to the present date, gives me eleven described genera and thirty-three described species, but undoubtedly a great part of them are merely synonymes. Four are from America, one from Asia, four or five from Africa, the other from Europe. The number of fossil species is not very small. Menge describes eight contained in the Prussian amber, belonging to five genera, still living, and Corda one (*Microlabis Sternbergi*) from the coal formation in Bohemia, one inch long.

One species belonging to a new genus (*Eucarpus*) entirely unknown by me, is found in gum copal. Linnæus and DeGeer described and figured a century ago a species from Surinam, *Chelifer Americanus*. I received many years ago, three examples from Surinam, not now before me, with the notice, "living parasitic upon *Acanthocinus longimanus*." This is the largest known living species.

Two species are described by the late Th. Say, from North America, *Ch. muricatus* and *oblongus*; and Koch

described and figured, from an imperfect example, a species from Brazil, as a new genus *Pelorus*, probably identical with Chernes, as *P. rufimanus*. The kind communications received by American naturalists (Messrs. Packard, Sanborn, Burgess, Walsh, Allen and Cresson) allowed me to add five species new to the American fauna, but undoubtedly the number of American species are much more considerable. The celebrated Danish entomologist, Dr. Schiödte, has found in the caves of Adelsberg a curious blind species, quite common there, and it is very probable that a closer examination of the Kentucky caves will give similar American species. His new genus, *Blothrus*, seems to be a blind species of the four-eyed genus *Chthonius* Koch. The nine American species now known represent all the living genera except *Cheiridium*, but it is more than probable that the unique living species, *Ch. museorum*, lives also in the American collections. One species, which seems to be the most common in New England, is surely identical with the *Ch. cancroides*, first described by Linnæus. A very close examination and comparison with the types received for that purpose from Dr. Menge, make the identity sure.

The seven North American species are not difficult to separate, and I give these most striking differences, in the hope to procure the discovery of new species.

A. NO EYES. CERNES.

1. *Ch. Sanborni* Hag. Rufous, opaque, granulated, body flat, broad, ovate; palpi and hands stout. Massachusetts.
2. *Ch. oblongus* Say. Chestnut brown, shining, polished; body flat, ovate; palpi and hands stout. Georgia, Florida, Pennsylvania.

B. TWO EYES. CHELIFER.

3. *Ch. cancroides* Linn. Dark brown, opaque; thorax armed with many short spines; more numerous in the male; body elongated, ovate; palpi and hands very long. Massachusetts, Illinois.
4. *Ch. muricatus* Say. Dark brown; thorax and hands black; the

fingers rufous; body flat, broad, ovate, strongly granulated; palpi and hands stout. Massachusetts.

I had before considered the *Ch. cancroides* as the species described by Say, because this species has only many short spines on the thorax; but the paler fingers, expressly referred to by Say, and not existing in the *Ch. cancroides*, but only in the *Ch. muricatus* above mentioned, seems to prove the identity; perhaps Mr. Say has united both species.

5. *Ch. Wrightii* Hag. Brown, opaque; body flat, very large; a little tubercle in the middle of the metathorax, and a similar one each side on the abdominal segments; palpi very long and thin, hands long, thin, cylindrical. Cuba. Perhaps this species will be found also in Florida and in the southern States.

C. FOUR EYES; body more cylindrical.

a. Fingers curved.

OBISIUM.

6. *O. brunneum* Hag. Pale brown, polished; thorax nearly quadrangular; palpi short, stout. Massachusetts.

b. Fingers straight.

CHTHONIUS.

7. *Chth. Pensylvanicus* Hag. Pale brown, polished; thorax quadrangular, narrowed behind; palpi long, thin. Philadelphia.

The largest species, *Ch. Wrightii*, is 8-60 inch long, the others are a little smaller.

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RECORD

OF

AMERICAN ENTOMOLOGY

FOR THE YEAR 1870.

EDITED BY

A. S. PACKARD, JR., M. D.

J. M. N. H.

SALEM.

NATURALIST'S BOOK AGENCY.

1871.

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Normal III

of Nat. Hist.

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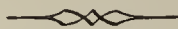
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INTRODUCTORY.



Though the RECORD for the past year comprises a less number of pages than those issued for the last two years, we are not to infer that Entomology is on the decline in America. There are many indications beneath the surface that promise much for the future of this study.

While we regret that the *American Entomologist* has suspended publication for the year, we are glad to see that the *Canadian Entomologist* has been enlarged, and its prosperity become assured. The American Entomological Society has published less than usual this year, but one number of its "Transactions" having thus far appeared.

The number of American entomologists whose articles or notes are referred to in the RECORD, is thirty-five; while three hundred and one new species of North (and Central) American insects have been described in American journals during the year 1870. Much attention has been paid to the subject of practical entomology, and the habits and distribution of insects.

RECORD OF AMERICAN ENTOMOLOGY

FOR THE YEAR 1870.

HYMENOPTERA.

R. OSTEN SACKEN (Trans. Amer. Ent. Soc., iii, 54). Contributions to the Natural History of the Cynipidæ of the United States, and their galls. (Article 5th.)

W. COUPER (Can. Ent., ii, 49). Remarks on the History and architecture of the wood paper-making Wasps.

H. F. BASSETT (Can. Ent., ii, 98). Galls found on plants of the genus *Rubus*.

W. COUPER (Can. Ent., ii, 110). On the Economy of a species of *Fœnus*.

W. COUPER (Can. Ent., ii, 113). Ichneumon in a Spider's cocoon.

W. SAUNDERS (Can. Ent., ii, 146). Entomological Gleanings; being notes on *Nematus ventricosus*, and *Selandria cerasi*.

B. D. WALSH (Amer. Ent., ii, 297, 329 and 367). On the group Eurytomides of the Hymenopterous family Chalcididæ: with remarks on the theory of species, and a description of *Antigaster*, a new and very anomalous genus of Chalcididæ. This paper gives synopses of the subfamilies of Eurytomides, and of the genera and species of *Eurytoma*, *Decatoma*, and *Isosoma*. He suggests that

among these parasites there may be "Entomophagic Varieties and Entomophagic Species, strictly analogous to what I have described as Phytophagic Varieties and Phytophagic Species." He also remarks on Dimorphism, believing that "dimorphic forms" very frequently appear in both sexes." He gives a long account of his studies on *Cynips quercus-spongifica*, and shows by new observations that *Cynips q. aciculata* "is a mere dimorphous female form" of *C. q. spongifica*, combating Reinhard's hypothesis "that the form *q. aciculata* is the only true gall-making form, and that both *q. spongifica* and *q. inanis* are inquilineous," adding that Reinhard's opinion "is sufficiently refuted by the negative fact that no form analogous to *q. aciculata* can be obtained, after extensive trials repeated through several years, from the gall of *q. inanis*." The paper is fully illustrated.

W. LEBARON (Amer. Ent., ii, 360). The Chalcideous Parasite of the Apple-tree Bark Louse (*Chalcis* [Aphelinus] *mytilaspidis* n. sp.).

APIDÆ.

C. V. RILEY (Amer. Ent., ii, 214) figures the nest of *Ceratina dupla*?

VESPIDÆ.

H. GILLMAN (Amer. Ent., ii, 167) gives an account of the habits of *Vespa maculata*.

FORMICIDÆ.

B. R. TOWNSEND (Amer. Ent., ii, 324) gives an account of the habits of *Atta ferens* Say, of Texas.

ICHNEUMONIDÆ.

W. COUPER (Can. Ent., ii, 110) describes as new, from Canada, *Fœnus arca*.

CHALCIDIDÆ.

R. OSTEN SACKEN (Trans. Amer. Ent. Soc., iii, 58) describes as new *Callimome ebria*, from gall of *Lasioptera vitis* O. S., near Washington, D. C.; *C. dura*, from the gall of *Diplosis caryæ*, from Washington, D. C.; *C. advena*, from gall of *Diastrophus nebulosus* O. S., from Washington, D. C.; *C. tubicola*, from gall of *Cynips quercus-tubicola*,

from Washington, D. C.; *C. flavicoxa*, from gall of *Rhodites radicum* O. S., from Conn.; *C. brevicauda*, from gall of *Diastrophus nebulosus* O. S., from Washington, D. C.; *C. magnifica*, from root-gall of *Rhodites radicum* O. S.; *C. chrysochlora*, from gall of *Rhodites dichloceros* Harris, from Conn.; *C. solitaria*, from rose-gall, from Washington, D. C.

C. V. RILEY (Amer. Ent., ii, 101) describes as new *Chalcis Maria* from cocoons of *Telea Polyphemus* and *Platysamia Cecropia*, from Kentucky and New Jersey.

B. D. WALSH (Amer. Ent., ii, 297, 329 and 367) describes as new *Eurytoma bicolor*, *E. prunicola*, *E. auriceps*, *E. punctiventris*, *E. abnormicornis*, *E. diastrophii*, *E. gigantea*, from Illinois, and redescribes *E. studiosa* Say; he also describes as new *Decatoma varians*, *D. nigriceps*, *D. nubilistigma*, *D. hyalipennis*, and *D. simplicistigma*, from Illinois. He shows that the four species of *Eurytoma* described by Fitch are synonyms of *Eurytoma* (*Isosoma*) *hordei* Harris, and describes the parasite of the latter, *Semiotellus chalcidephagus* n. sp. (fig. 7). Of the subfamily Encyrtides, he describes *Antigaster* (n. g.) *mirabilis* n. sp. (fig. 9), from Illinois, and Mr. Riley adds a description of the male (fig. 10) which he reared from the eggs of *Phylloptera oblongifolia* from Missouri. This species is remarkable from its habit of holding its abdomen over its back.

W. LEBARON (Amer. Ent., ii, 360) gives a description and an account of the habits of *Chalcis* (*Aphelinus*) *mytilaspidis* n. sp., from Illinois. It is very destructive to the Apple Bark Louse, and has greatly diminished its numbers in the Western States.

C. V. RILEY (Ann. Report Ins. Missouri) describes and gives an account of the habits of *Isosoma vitis* Saunders.

CYNIPIDÆ.

R. OSTEN SACKEN (Trans. Amer. Ent. Soc., iii, 54) publishes new observations on the gall of *Cynips quercus-palustris* O. S., and describes as new *C. q.-notha*, from N. Y., and *C. quercus-echinus*, from California.

H. F. BASSETT (Can. Ent., ii, 98) describes as new *Diastrophus radicum*, and *D. turgidus*, from Conn.

C. V. RILEY (Amer. Ent., ii, 159) figures and describes the gall of *Diastrophus nebulosus* O. S., and on p. 213, the gall of *Rhodites rosæ*, and on p. 309, the gall of *Rhodites bicolor*.

TENTHREDINIDÆ.

A. S. PACKARD, Jr. (Injurious Insects, 17) describes the habits and male of *Abia caprifolii* Norton.

W. SAUNDERS (Amer. Ent., ii, 200) records some facts regarding the habits of *Nematus ventricosus* Klug.

LEPIDOPTERA RHOPALOCERA.

W. H. EDWARDS (Butterflies of N. Amer., part 5-7). In this beautiful work, the following species are illustrated: — *Limenitis Lorquini*, *L. Bredowii*, *Argynnis Edwardsii*, *A. Behrensi*, *A. Zerene*, *Melitæa Chalcedon*, *Paphia glycerium*, *Grapta Faunus*, *Lycæna pseudargiolus*, *L. neglecta*, *Colias Eurydice*, *C. Edwardsii*, *C. occidentalis*, *Anthocaris Reakirtii*, *A. Cooperii*, *A. Sara*, *Parnassius Clarius*, *P. Clodius*.

W. H. EDWARDS (Trans. Amer. Ent. Soc., ii, 10-22). Descriptions of new species of Diurnal Lepidoptera found within the United States. Eighteen new species are fully described.

W. H. EDWARDS (Can. Ent., ii, 115) has succeeded in obtaining the eggs of *Papilio Ajax*, *Colias Philodice*, *Nisoniades Lycidas* and *Pylades*, by confining the females with the food-plants of the larvæ.

J. M. JONES (Can. Ent., ii, 157; from Nature). Nova Scotian Lepidoptera. This is a short abstract of a paper read at a meeting of the Institute of Natural Science, Halifax, N. S., "On the Diurnal Lepidoptera of Nova Scotia, Rhopalocera, Part 1."

H. W. PARKER (Amer. Ent., ii, 175). Iowa Butterflies. A list of the butterflies at Grinnell, Iowa, additional to those in Mr. Scudder's list, is given.

E. B. REED (Can. Ent., ii, 121-123 and 149-151). Accentuated List of Canadian Lepidoptera. These articles give, besides the accentuation, the derivation and explanation of the generic and specific names. The first two numbers do not complete the butterflies.

C. V. RILEY (Second Ann. Rept. on the Noxious, Beneficial, and other Insects of the State of Missouri, 1870). The habits of the cabbage butterflies (*Pieris*) are fully described and all the stages figured, and there are also articles on *Papilio Philenor* and *Paphia glycerium*, in which the different stages of these species are described and figured.

S. H. SCUDDER and EDWARD BURGESS (Proc. Bost. Soc. Nat. Hist., xiii, 282-306). On Asymmetry in the Appendages of Hexapod Insects, especially as illustrated in the Lepidopterous Genus *Nisoniades*. The external genital organs of the males of a large number of species of *Nisoniades*, most of them new, are described and figured, and the species are arranged in eight groups based on the character of these organs.

S. H. SCUDDER (Trans. Chicago Acad. Sci., i, 326-337, 1869). A preliminary List of the Butterflies of Iowa. This list is based entirely upon the collections and field observations of J. A. Allen made during the summer of 1867. Several new species are described.

S. H. SCUDDER (Can. Ent., ii, 156) has obtained quantities of eggs of *Eudamus Pylades*, *Neonympha Eurytris* and *Hesperia Mystic* by confining the females with the food-plants of their larvæ.

NYMPHALIDÆ.

C. J. S. BETHUNE (Can. Ent., ii, 55) notices *Limenitis Proserpina* from Nova Scotia.

E. G. BOUTELL (Amer. Ent., ii, 241) records the capture of *Limenitis Proserpina* at Evanston, Illinois.

W. H. EDWARDS (Butt. N. Amer., pt. 5-7) describes and figures *Limenitis Lorquini* (no locality given); *L. Bredowii*; *Argynnis Edwardsii*, from the mountains of Colorado; *A. Behrensii*; *A. Zerene*; *Melitæa Chalcedon*; *Paphia glycerium*; *Grapta Faunus*, from northeastern states, Nova Scotia, Fort Simpson and Rupert House.

W. H. EDWARDS (Trans. Amer. Ent. Soc., iii, 1-9), in an article entitled Notes on *Grapta c-aureum* and *interrogationis* Fabr., discusses the synonymy of these species, refers the *umbrosa* of Lintner to typical *interrogationis* Fabr., and describes the allied form, called *interrogationis* by Lintner, as a new species under the name of *Fabricii*. He notices the resemblance between these species and *G. comma*, and describes, under the name *Dryas*, a new species allied to *comma*.

W. H. EDWARDS (Trans. Amer. Ent. Soc., iii, 14-17) describes the following new species:—*Argynnis Nevadensis*; *Grapta Silenus*, Oregon; *G. Zephyrus*, Virginia City and Colorado; *G. Marsyas*, California; *G. Dryas*, West Virginia.

THE EDITOR OF THE AMERICAN ENTOMOLOGIST (Amer. Ent., ii, 121-123) describes and figures the larva, chrysalis, and male and female imago of *Paphia glycerium* from Illinois.

T. W. HIGGINSON (Amer. Ent., ii, 177) reports *Limenitis Ursula* as one of the commonest of the larger butterflies at Newport, R. I.

J. M. JONES (Can. Ent., ii, 157) gives the following as Nova Scotian species:—*Erebia Nephele*, *Satyrus Alope*, *Debis Portlandia*, *Argynnis Aphrodite*, *A. Myrina*, *Melitæa Tharos*, *M. Ismeria*, *Grapta c-argenteum*, *G. interrogationis*, *G. comma*, *Vanessa Antiopa*, *V. J-album*, *V. Milberti*, *Pyrameis cardui*, *P. Huntera*, *P. Atalanta*, *Nymphalis Arthemis*, *N. Dissippus*, *Danais Archippus*.

H. W. PARKER (Amer. Ent., ii, 175) records *Erebia Nephele*, *Vanessa Antiopa*, *V. Progne*, *Argynnis Bellona* and *A. Myrina* from Iowa.

C. V. RILEY (Ann. Rept. on the Insects of Missouri, 123-128) describes and figures the stages of *Paphia glycerium*.

W. SAUNDERS (Can. Ent., ii, 139-142) gives a wood cut of the larva of *Neonympha Eurytris*, descriptions of the eggs, of the larvæ in different stages of growth, and of the habits, etc., of the perfect insect.

W. SAUNDERS (Can. Ent., ii, 148) describes the eggs of *Danais Archippus* obtained by confining the females in a bag tied over a plant of *Asclepias*.

S. H. SCUDDER (Trans. Chicago Acad., i, 331-334, 337) describes *Apatura Proserpina*, sp. nov., and records *Neonympha Eurytris*, *Hipparchia Boisduvalii*, *Satyrus Alope*, *S. Portlandia*, *Grapta comma*, *G. c-aureum*, *G. interrogationis*, *Junonia Cænia*, *Pyrameis Atalanta*, *P. cardui*, *P. Huntera*, *Melitæa Nycteis*, *M. Tharos*, *M. Carlota*, *Apatura Celtis*, *Euptoieta Claudia*, *Argynnis Aphrodite*, *A. Cybele*, *A. Idalia*, *Limenitis Ursula*, *L. Misippus* and *Danaïs Eriippus*.

S. H. SCUDDER (Proc. Bost. Soc. Nat. Hist., xiii, 276) calls attention to two distinct forms of *Grapta* which had formerly been labelled *G. interrogationis*, and sustains Edwards' view that the name *interrogationis* should be retained for the darker form called *obscura* by Lintner, and the new name *Fabricii* of Edwards for the species which Lintner considers *interrogationis*. He also proposes the name *G. Crameri* for the species figured by Cramer and by Abbot and Smith as *G. c-aureum*, the original *c-aureum* of Linné being a Chinese species.

LYCÆNIDÆ.

W. H. EDWARDS (Butt. N. Amer., pt. 5) describes and figures *Lycæna pseudargiolus* from Virginia, Ohio, Georgia, Penn., New York, and *L. neglecta* from the Northern States, Canada, British America and West Virginia.

W. H. EDWARDS (Trans. Amer. Ent. Soc., iii, 18-21) describes the following new species:—*Thecla Behrii*, California; *T. Tetra* Behr, MS.; *T. Dryope*, Colorado; *Lycæna Kodiak*, Kodiak; *Chrysophanus cupreus*, Oregon; *C. Virginiensis*, Nevada; *C. Hermes*, California.

H. W. PARKER (Amer. Ent., ii, 175) records *Thecla strigosa* Harr. from Iowa.

W. SAUNDERS (Can. Ent., ii, 61-63) describes the larva of *Thecla inorata*.

S. H. SCUDDER (Proc. Bost. Soc. Nat. Hist., xiii, 272) discusses the synonymy of *Thecla calanus* and concludes that *T. Falacer* of Godart and of Boisduval and Leconte, and *T. inorata* of Grote and Robinson are the same as the *calanus* of Hübner, while the *calanus* of Grote and Robinson and the *Falacer* of Harris belong to a distinct species, for which he proposes to retain Saunders' MS. name, *T. Edwardsii*.

S. H. SCUDDER (Trans. Chicago Acad., i, 330-331) describes as new *Chrysophanus Dione* from Iowa, and notices the occurrence, in the same state, of *Lycæna neglecta*, *L. Comyntas*, *Thecla Falacer*, *T. Mopsus*, and in Illinois, of *Lycæna neglecta*.

PAPILIONIDÆ.

THE EDITOR OF THE AMERICAN ENTOMOLOGIST (Amer. Ent., ii, 340) notices the capture of *Callidryas philea* in northern Illinois.

W. H. EDWARDS (Butt. N. Amer., pt., 6, 7) describes and figures

Parnassius Clarius, from California; *P. Clodius*; *Anthocaris Cooperii*, from California; *A. Reakirtii*; *A. Sara*, from California; *Colias Edwardsii*, from Nevada; *C. occidentalis*.

W. H. EDWARDS (Can. Ent., ii, 133) has reared *Papilio Marcellus* from the eggs of *P. Ajax*, and *P. Ajax* again from the eggs of *Marcellus*.

W. H. EDWARDS (Trans. Amer. Ent. Soc., iii, 10-13) describes the following new species:—*Parnassius Behrii*, Sierra Nevada; *Colias Edwardsii* Behr, sp. nov., Virginia City; *C. Emilia*, Oregon; *C. Ariadne*, California; *Pieris Virginiensis*, West Virginia, Canada.

J. M. JONES (Can. Ent., ii, 157) records *Papilio Turnus*, *Pieris oleracea*, *P. rapæ* and *Colias Philodice* from Nova Scotia.

CHAS. S. MINOT and THE EDITOR OF THE AMERICAN ENTOMOLOGIST (Amer. Ent., ii, 74-77), in an article on Cabbage Butterflies, describe and figure the different stages of *Pieris rapæ*, *P. oleracea* and *P. Protodice* and give an account of their habits.

H. W. PARKER (Amer. Ent., ii, 175) reports *Papilio Turnus*, *P. Asterias*, *P. Philenor*, *P. Thoas* and *P. Ajax*, var. *Marcellus* from Iowa.

C. V. RILEY (Ann. Rept. on the Insects of Missouri, 104-110) describes and figures the different stages of *Pieris Protodice*, *P. oleracea* and *P. Rapæ*, and discusses their habits and the remedies for their devastations. He also (116-118) describes and figures the different stages of *Papilio Philenor*.

S. H. SCUDDER (Trans. Chicago Acad., i, 329-330) records *Papilio Turnus* var. *glaucus*, *Pieris Protodice*, *Colias Philodice*, *C. Eurytheme* and *Zerene Cæsonia* from Iowa, also *Pieris Protodice* and *Colias Philodice* from Illinois.

S. H. SCUDDER (Proc. Bost. Soc. Nat. Hist., xiii, 221) describes the larva and chrysalis of *Papilio Rutulus* from California.

HESPERIDÆ.

W. H. EDWARDS (Trans. Amer. Ent. Soc., iii, 22) describes *Hesperia Hayhurstii*, sp. nov., from Missouri.

H. W. PARKER (Amer. Ent., ii, 271) describes *Hesperia Powesheik*, sp. nov., from Grinnell, Iowa.

H. W. PARKER (Amer. Ent., ii, 175) records *Hesperia Bathyllus* (*Py-lades* Scudd.) and *Nisoniades Catullus* from Iowa.

SCUDDER and BURGESS (Proc. Bost. Soc. Nat. Hist., xiii, 282-306) describe and figure the external genital organs of the males of the following species of *Nisoniades*:—*N. Persius* Scudd., New England; *N. Lucilius* Lintner MSS., New England; *N. Icelus* Lintner MSS., New England; *N. Brizo* Westw., New England to Florida; *N. Martialis* Scudd., Northern States; *N. Terentius*, sp. nov., Florida; *N. funeralis*, sp. nov., Texas; *N. Ovidus*, sp. nov., Florida; *N. Ennius*, sp. nov., New

England; *N. Juvenalis* Westw., Southern States; *N. Propertius*, California; *N. Tibullus*, California; *N. Horatius*, New England, Texas; *N. Virgilius*, New England; *N. tristis* Boisd., California; *N. Plautus*, Florida.

S. H. SCUDDER (Proc. Bost. Soc. Nat. Hist., xiii, 206) states that the external genital organs in the males of the North American species of *Nisoniades* are asymmetrical; *N. Catullus* does not come under this rule, but its structural features show that it is wrongly placed in this relation.

S. H. SCUDDER (Proc. Bost. Soc. Nat. Hist., xiii, 207) states that *Eudamus Bathyllus* of Harris is not the species described and figured by Abbot and Smith under that specific name, and he proposes the name *E. Pylades* for Harris' species.

S. H. SCUDDER (Trans. Chicago Acad., i, 334-337) describes *Nisoniades Martialis* and *Hesperia Iowa* as new, and, with them, records the following from Iowa:—*Eudamus Tityrus*, *Hesperia Samoset*, *H. Metacomet*, *H. Ahaton*, *H. Leonardus*, *H. Sassacus*, *H. Napa*, *H. Hobomok*, *H. conspicua*, *H. Logan*, *H. Delaware*, *Pyrgus Syrictus*. He also notes *Eudamus Tityrus*, *E. Lycidas*, *E. Bathyllus*, *Hesperia Samoset*, *H. Ahaton* and *H. Hobomok* from Illinois.

LEPIDOPTERA HETEROCERA.

H. BEHR (Trans. Amer. Ent. Soc., iii, 23). Synopsis Noctuidarum hujusque in California repertarum.

C. T. ROBINSON (Annals Lyceum Nat. Hist. N. Y., ix, 152, 310, published Oct., 1869). Lepidopterological Miscellanies, 1, 2.

C. J. S. BETHUNE (Can. Ent., ii, 73). Note on *Amphipyra tragopogonis* Linn.

W. SAUNDERS (Can. Ent., ii, 74). On the Larvæ of some Lepidoptera.

A. R. GROTE (Can. Ent., ii, 114). Notice of the Species of Drepanodes.

A. S. PACKARD, Jr. Injurious Insects new and little known. (From Annual Report Mass. Board of Agriculture, 1870.)

A. S. PACKARD, Jr. (Amer. Naturalist, iv, 225). A few words about Moths. Refers to their transformations, illustrated by rude figures from Abbot's unpublished drawings.

C. V. RILEY (Second Annual Report on the Noxious, Beneficial, and other Insects of Missouri). In part reprinted from the American Entomologist, ii.

SPHINGIDÆ.

C. V. RILEY (Second Annual Rept. Ins. Missouri) describes (with figures) the habits of *Charocampa pampinatrix* (Sm. and Abb.), *Philampelus achemon* (Drury), *P. satellitia* (Linn.), and *Thyreus Abbotii* Swains.

C. V. RILEY (Amer. Ent., ii, 257) gives an illustrated account of the transformations of *Deilephila lineata* Fabr.

ZYGÆNIDÆ.

C. V. RILEY (Second Annual Report Ins. Missouri) describes (with figures) the habits of *Alypia 8-maculata* (Fabr.), *Eudryas grata* (Fabr.), *E. unio* (Hübner), and *Procris Americana* Boisd.

BOMBYCIDÆ.

C. T. ROBINSON (Annals N. Y. Lyceum, ix, 152) gives a short description of *Euphanessa mendica* Pack., and describes as new *E. unicolor* (Pl. 1, fig. 2), from Texas.

W. SAUNDERS (Can. Ent., ii, 74) describes the larva of *Arctia celia* Saunders, and *Dryocampa rubicunda* (Fabr.).

P. S. SPRAGUE (Can. Ent., ii, 82) describes the eggs of *Platysamia Cecropia* (Linn.).

S. S. RATHVON (Amer. Ent., ii, 81) notices the mode of sexual congress in *Thyridopteryx ephemeraeformis* Steph.

C. V. RILEY (Amer. Ent., ii, 97) gives an illustrated account of *Platysamia Cecropia* (Linn.), and its parasites; on p. 127 an illustrated account of *Xyleutes robiniae* (Pack.); on p. 182 an illustrated note on *Pyrrharctia isabella* (Sm. and Abb.); on p. 261, *Clisiocampa sylvatica* Harr.; on p. 272, *Spilosoma Virginica* (Fabr.).

WM. LEBARON (Amer. Ent., ii, 143) gives an illustrated account of *Clisiocampa Americana* Harr.

NOCTUIDÆ.

H. BEHR (Trans. Amer. Ent. Soc., iii, 23) describes as new from California *Agassizia urbicola*, *Capnodes Californica*, *Catocala Zoe*, *C. Stretchii*, *C. Irene*, *Bolina hadeniformis*, *Syneda ochracea*, *S. nubicola*,

S. maculosa, *S. Mexicana* (from Mazatlan), *S. Tejonica* (also from Virginia City, Nevada), *S. Stretchii* (from Virginia City, Nev.), *S. socia*, *S. adumbrata*, *S. divergens*, *S. Edwardsii*, *Homoptera salicis*, *H. rosæ* (with notes on the larvæ of the two last species); and records *Erebus odora* (Linn.) and *Bolina jucunda* Hübn.? as occurring in California.

C. J. S. BETHUNE (Can. Ent., ii, 73) describes the larva of *Amphipyra tragopogonis* (Linn.).

W. SAUNDERS (Can. Ent., ii, 75) describes the larva of *Mamestra arctica* Encyc.; on p. 130, the larva of *Ophiusa bistrariis* (Hüb.); on p. 145, the larva of *Diphthera deridens* Guer.

C. V. RILEY (Second Annual Rept. Ins. Missouri) describes (with figures) the habits of *Leucania unipuncta* (Haw.), *Plusia brassicæ* n. sp., *Mamestra picta* Harr., *Acronycta populi* n. sp., *Acronycta obliterata* (Smith-Abb.) and on p. 363, *Prodenia autumnalis* n. sp.

PHALÆNIDÆ.

W. SAUNDERS (Can. Ent., ii, 74 and 128) describes the larva of *Cidaria diversilineata* (Hüb.).

A. R. GROTE (Can. Ent., ii, 114) describes *Drepanodes sesquilinea* n. sp., from Alabama.

A. S. PACKARD, Jr. (Inj. Ins. Mass., 11) describes the habits of *Chærodes transversata* Walk.; *Halia wavariva* Gødart; *Priocyclus bilinearia* n. sp.; *Paraphia piniata* n. sp., from Ont., Canada; *Zerene piniaria* n. sp., from Mass. and Canada; *Parennomos* (n. g.) *piniata* n. sp., from Mass. and Canada.

C. V. RILEY (Second Annual Rept. Ins. Missouri) describes (with figures) the habits of *Anisopteryx vernata* Peck.

C. V. RILEY (Amer. Ent., ii, 203) gives an illustrated account of the transformations of *Aplodes rubivora* Riley, from Missouri and New Jersey.

PYRALIDÆ.

H. BEHR (Trans. Amer. Ent. Soc., iii, 23) describes as new *Hypena Californica* from San Francisco, Cal.

C. T. ROBINSON (Annals N. Y. Lyceum, ix, 153) describes as new *Oligostigma albalis* (Pl. 1, fig. 3), from N. Y. and Penn.; *Cataclysta bifascialis* (Pl. 1, fig. 4), from Texas; *Eromene Texana* (Pl. 1, fig. 5), from Texas. On p. 310 he notices *Hypena Baltimoralis* from N. Y. and Penn., *H. bijugalis* and *H. manalis* from N. Y., and describes *H. internalis* n. sp., and *H. evanidalis* n. sp., from Penn.; and *Schænobius longirostrellus* (Clem.), he records from Mass., Penn. and N. Y.; *S. melinellus* (Clem.), from Penn. and N. Y.; and describes *S. dispersellus* n. sp., from N. Y. and Texas; *S. unipunctellus* n. sp., and *S. tripunctellus* n. sp., from Texas; *Crambus minimellus* n. sp., from Penn.; and redescribes *C. bipunctellus* Zeller, from Ohio, Penn., Ill. and Va.

W. SAUNDERS (Can. Ent., ii, 126) describes the habits of *Phycita nebulo* Walsh.

A. S. PACKARD, Jr. (Inj. Ins. Mass., 18) describes the habits of *Botys syringicola* n. sp., from N. Y.

C. V. RILEY (Second Annual Rept. Ins. Missouri) describes the habits (with figures) of *Phakellura nitidalis* (Cram.).

C. V. RILEY (Amer. Ent., ii, 208) gives an illustrated account of the transformations of *Desmia maculalis* Westw.

TORTRICIDÆ.

A. S. PACKARD, Jr. (Inj. Ins. Mass., 1) describes the habits of *Grapholitha oculana* Harr.; p. 6, *Tortrix V-signatana* n. sp.; *T. oxycoccana* Pack.; *T. incertana* Clem., all from Mass.; and *T. vaciniivorana* n. sp., from New Jersey.

C. V. RILEY (Second Ann. Rept. Ins. Missouri) figures and describes *Euryptychia saligneana* Clem.

TINEIDÆ.

C. T. ROBINSON (Ann. N. Y. Lyceum, ix, 155) describes *Depressaria cinereocostella* n. sp., Pl. 1, fig. 6; re-describes *D. atrodorsella* Clem., Pl. 1, fig. 7; *D. Lecontella* Clem., Pl. 1, fig. 9; and describes *D. Grotella* n. sp., Pl. 1, fig. 10.

A. S. PACKARD, Jr. (Inj. Ins. Mass., 5) describes the habits of *Micropteryx pomivorella* n. sp.

C. V. RILEY (Second Ann. Rept. Ins. Missouri) figures and describes the habits and transformations of *Walshia amorphella* Clem.

PTEROPHORIDÆ.

C. V. RILEY (Amer. Ent., ii, 234) gives an illustrated account of *Pterophorus periscelidactylus* Fitch.

DIPTERA.

R. OSTEN SACKEN (Trans. Amer. Ent. Soc., iii, 51).
Biological Notes on Diptera. (Article 2d.)

B. D. WALSH (Amer. Ent., ii, 137). Larvæ in the human bowels.

CECIDOMYIADÆ.

R. OSTEN SACKEN (Trans. Amer. Ent. Soc., iii, 151) describes as new *Aspondylia rudbeckiæ-conspicua* from very large galls, formed on the flower of *Rudbeckia triloba*? in Penn., and gives some characters of *A. helianthi-globulus* Walsh.

He also describes the galls of *Cecidomyia sambuci-umbellicola* n. sp., consisting in the enlargement of the flower-buds of *Sambucus racemosa*; of *C. caryæ-nucicola* n. sp., which deform the nut and give it an irregular appearance; of *C. tiliæ-citrina* n. sp., consisting of deformed and swollen terminal buds of the linden tree, *Tilia Americana*; of *C. quercus majalis* n. sp. (and not *majulis* as it is printed), which consists in hollow bladder-like swellings on the leaves.

SIMULIDÆ.

S. GREEN (Trout Culture, 92) calls attention to the fact that young trout and whitefish are killed by the web spun by the larva of *Simulium*. "The threads are not strong enough to hold the young trout after the umbilical sac is absorbed, but the web will stick to the fins and get wound around the head and gills and soon kills the fish." "I found ten small whitefish caught in one web in one night."

C. V. RILEY (Amer. Ent., ii, 227). The Death-web of young Trout. A notice of the habits of the larva of *Simulium*, which is supposed to catch young trout by spinning a web.

R. OSTEN SACKEN (Amer. Ent., ii, 229). On the transformations of *Simulium*, with figures; the original observations made on a species at Washington.

S. J. MCBRIDE (Amer. Ent., ii, 365). The so-called web-worm of young trout. Original observations on *Simulium*. Miss McBride's article entirely denies the statement made about the larvæ of *Simulium* interfering with young trout by means of webs. According to her, these larvæ, far from being dangerous to young fish, supply it with a wholesome food.

C. V. RILEY (Amer. Ent., ii, 366). Description of *Simulium piscicidium* n. sp. ♀, the species referred to in the preceding article.

C. V. RILEY (Amer. Ent., ii, 244) describes as new, from Tennessee, the gall and fly of *Cecidomyia Cupressi-ananassa*, figuring the gall, which is found on the *Taxodium distichum* Richard (see p. 273).

TABANIDÆ.

C. V. RILEY (Second Annual Report Ins. Missouri, 128) describes and figures the larva and adult of *Tabanus atratus* Fabr.

A. S. PACKARD, Jr. (Injurious Insects, 24) describes and figures the pupa of the same fly.

ASILIDÆ.

C. V. RILEY (Second Annual Report Ins. Missouri, 121) describes and figures *Asilus Missouriensis* n. sp., which destroys the honey bee. He also describes and figures the larva, pupa, and adult of *Erax Bastardi*.

A. S. PACKARD, Jr. (Injurious Insects, 22) describes and figures

the pupa of *Proctacanthus Philadelphicus*, which burrows in the sand of the seashore at Plum Island, Mass.

SYRPHIDÆ.

C. V. RILEY (Amer. Ent., ii, 142) gives in a note a brief account of the habits of several Syrphi, figuring *Helophilus latifrons* Loew; *Scæva Philadelphica* Macq.; also figuring the larva of the latter, which feeds on Aphides on the Golden Rod in Illinois.

MUSCIDÆ.

C. V. RILEY (Amer. Ent., ii, 101) notes the parasitism of *Exorista militaris* Walsh on *Platysamia Cecropia*, and describes its mode of transformation.

B. D. WALSH (Amer. Ent., ii, 137) gives an account and description of the larvæ of *Homalomyia Wilsonii* n. sp., from human intestines; *H. prunivora* n. sp., from a mass of decayed plums (with description of imago); and *H. Leidyi* n. sp., stated by Dr. Leidy to have come from human intestines; the two former from Illinois.

C. V. RILEY (Second Annual Report Ins. Missouri, 50) describes *Exorista flavicauda* n. sp., from Missouri, where it occurred in herbage.

COLEOPTERA.

THE following notice of the progress of this department of Entomology contains first, a list of the various contributions arranged under the authors' names, with the periodical in which published, and secondly, under the various family headings, the names of the species and genera new to our fauna, or described for the first time. Those papers which contain no descriptions of new species, are briefly noticed under the titles of the papers themselves, so that the reader may have an idea of their contents without unnecessarily lengthening the second part under the family headings; papers containing new species will not be thus noticed, but the species themselves referred to in their appropriate place in the present contribution.

P. S. SPRAGUE (Can. Ent., vol. ii, Nos. iv, v, vi, viii). "Notes on some of the common Species of Carabidæ found in Temperate North America."

The above papers treat principally of *Harpalus* and its close allies; descriptions of many species are given, and synoptic tables that may assist the student in his determination of the species treated of.

P. S. SPRAGUE (Amer. Ent., ii, 370). An article on a new Rove-beetle and its habits.

J. PETTIT (Can. Ent., ii, 65, 84, 102, 117, 131). "List of Coleoptera taken at Grimsby, Ontario."

These are continuations from vol. i, and, although the region included by Mr. Pettit is not large, many interesting additions to the Canadian Fauna have been made. No less important than the list are the appended notes, giving at times the peculiar habits of the species or some remarkable facts in their time of appearance.

C. J. S. BETHUNE (Can. Ent., ii, 76, 89, 105). "Insects of the Northern part of British America." This paper is entirely a reprint, as the author states, of Kirby's Fauna Boreali-Americana.

The above author also notes the occurrence of *Doryphora 10-lineata* Say (the western Potato-beetle), in Ontario, Canada.

A. S. PACKARD, Jr. "Injurious insects new and little known." The notes on Coleoptera, in this pamphlet, are but few in number, and refer to the injurious habits of *Anthonomus suturalis* which lives on the Cranberry; of *Byturus unicolor*, on the Raspberry, and *Sphenophorus zeæ*, to be found on the Indian corn. There is also some space devoted to several species of *Bruchus* especially *varicornis* Lec., MS., and *pisi*. It is to be regretted that nothing has yet been done in this country in the determination of our species of Bruchidæ, some of which are

quite attractive in their appearance, while none are really minute.

C. V. RILEY. Second Annual Report on the Noxious, Beneficial, and other Insects of Missouri.

The above report contains much of interest, and but little that is new to Coleopterists. The author states that *Coccinella munda* and *Hippodamia maculata* prey on the Chinch bug. There is also an interesting article on our species of *Cassida*, with figures. The larva of *Orthosoma cylindricum* is figured, and also two species of *Prionus*, with notes on their habits.

J. L. LECONTE (Ann. and Mag. Nat. Hist., London, Dec., 1869). "List of Coleoptera collected in Vancouver's Island, by Henry and Joseph Matthews, with descriptions of some new species."

The above cited paper was not received in this country until six months after its publication, and should be noticed here (although printed abroad), being strictly American. The matter was prepared before its author left for Europe, and would have been published at home had not LeConte thought that he might obtain from the same source, other material that might greatly increase the value of the paper.

G. H. HORN (Trans. Amer. Phil. Soc., vol. xiv, N. S., pt. ii). "Revision of the Tenebrionidæ of America, north of Mexico."

G. H. HORN (Trans. Amer. Ent. Soc., vol. ii, 29-51). "Synopsis of the Parnidæ of the United States." "Notes on some genera of Coprophagous Scarabæidæ."

This short paper contains synoptic tables of *Copris* and *Canthon*, with rectification of synonymy, also Notes on *Amechanus* (n. g.), *Bolboceras* and *Odontæus* and a note on *Onitis nicanor*.

G. H. HORN (Trans. Amer. Ent. Soc., vol. ii, 69-142).

"Contributions to the Coleopterology of the United States." Principally descriptions of new species with synoptic tables of *Omophron* and *Collops*, and notes on the synonymy of various species.

"Descriptive catalogue of the species of *Nebria* and *Pelophila* of the United States."

"On the species of *Oodes* and allied genera of the United States." The latter paper, though containing nothing absolutely new, brings together in a convenient form for students, all the species and genera of the group, so that they may be readily recognized.

"Descriptions of the species of *Aphodius* and *Dialytes* of the United States."

"Descriptions of new species of *Histeridæ* of the United States.

CARABIDÆ.

G. H. HORN (Trans. Amer. Ent. Soc., ii, 69) describes as new *Calosoma Haydeni*, Colorado; p. 70, *C. latipenne*, Cal.; p. 73, *Omophron robustum*, Nova Scotia, and *obliteratum*, Ariz.; p. 75, *O. ovale*, Cal.; p. 98, *Nebria ingens*, Cal.; p. 100, *N. virescens*, Vancouver; p. 101, *N. viridis*, Alaska; p. 105, *Pelophila Ulkei*, Hudson Bay Territory; p. 76, *Pseudomorpha Behrensi*, Cal.

J. L. LÉCONTE (Ann. Mag. Nat. Hist., Dec., 1869) describes as new *Platynus fraterculus*, *Zacotus* (n. g.) *Matthewsii*, *Patrobus fulcratus* and *trochantericus* (Fort Crook, Cal.), all except the last from Vancouver's Island.

DYTISCIDÆ.

J. L. LÉCONTE (Ann. Mag. Nat. Hist.) describes as new *Anisomera recta* from Vancouver's Island.

STAPHYLINIDÆ.

P. S. SPRAGUE (Amer. Ent., ii, 370) describes as new *Alæochara anthomyiæ*, from Mass.

HISTERIDÆ.

G. H. HORN (Trans. Amer. Ent. Soc., ii, 134) describes as new *Hister Ulkei*, from Nebraska, *H. Arizona*, from Arizona; p. 135, *H. Gloveri*, from Indian Territory, *H. militaris*, from California; p. 137, *Heterius Californicus*, from California, *Tribalis Californicus*, California; p. 138, *Onthophilus Lecontei*, California; p. 140, *Saprinus æquipunctatus*, from California; notices *S. cubæcola* Mars., from Key West,

and *S. aneicollis* Mars., from Texas, new to our fauna; and on p. 141, describes *Plegaderus nitidus* and *fraternus*, from Nevada.

BYRRHIDÆ.

G. H. HORN (Trans. Amer. Ent. Soc., ii, 76) describes as new *Byrrhus Pettiti*, Grimsby, Ontario.

PARNIDÆ.

G. H. HORN (Trans. Amer. Ent. Soc., ii, 30) describes as new *Psephenus Haldemani*, from Peninsula of California; p. 37, *Elmis quadrimaculatus*, from California, *E. glaber*, from Arizona, *E. mæstus*, from Arizona; p. 38, *E. abnormis*, from Arizona, *E. similis*, from Arizona, *E. ferrugineus*, from Texas; p. 41, *Macronychus parvulus*, from California.

SCARABÆIDÆ.

G. H. HORN (Trans. Amer. Ent. Soc., ii, 77) describes as new *Lichnanthe Edwardsi*, from Oregon; p. 48, *Amechanus* (n. g.), proposed for the U. S. species of *Athyreus*; p. 77, *Serica elongatula*, from California, *Dynastes Grantii*, from Arizona, *Valgus Californicus*, from California; p. 112, *Aphodius validus*, from Hudson's Bay; p. 114, *A. torpidus*, *A. occidentalis*, from Oregon; p. 118, *A. crassulus*, from Georgia; p. 121, *A. Nevadensis*, from Nevada, *A. vestiarius*, from Florida; p. 124, *A. leopardus*, from Maine; p. 125, *A. stupidus*, from Georgia, *A. lentus*, from Georgia and Penn.; p. 127, *A. rubiginosus*, from Arizona, *A. ægrotus*, from N. Carolina; p. 128, *A. politus*, from Texas; p. 129, *A. alternatus*, from Montana; p. 130, *A. Coloradensis*, from Colorado; p. 131, *A. phalerioides*, from the Middle States; p. 132, *A. Walshii*, from Illinois, *A. rubripennis*, from Canada; p. 133, *A. ovipennis*, from California.

ELATERIDÆ.

J. L. LECONTE (Ann. Mag. Nat. Hist., Dec., 1869) describes as new *Cardiophorus longulus*, *Elater anthracinus*, *Limonius nitidicollis*, *Corymbites fraternus*, from Vancouver.

G. H. HORN (Trans. Amer. Ent. Soc., ii, 79) describes as new *Corymbites longicornis*, North Carolina.

BUPRESTIDÆ.

G. H. HORN (Trans. Amer. Ent. Soc., ii, 79) describes as new *Acmæodera quadrivittata*, Utah.

MALACHIIDÆ.

G. H. HORN (Trans. Amer. Ent. Soc., ii, 82) describes as new *Collops validus*, from Sonora; p. 83, *C. pulchellus*, from Arizona, *C. laticollis*, from Peninsula of California; p. 84, *Trophimus* (n. g.) *æneipennis*, from Colorado; p. 85, *Attalus nigripes*, from Colorado; p. 86,

A. elegans, from California; p. 87, *Malachius* (*Hapalorhinus*) *biguttulus*, from California.

CLERIDÆ.

G. H. HORN (Trans. Amer. Ent. Soc., ii, 87) describes as new *Charissa elegans*, California.

TENEBRIONIDÆ.

G. H. HORN (Trans. Amer. Phil. Soc., N. S., vol. xiv, pt. ii, 259) describes as new *Triorophus subpubescens*, from Cal.; p. 260, *Stibia* (n. g.) *puncticollis*, from Peninsula of California; p. 261, *Trimytis pulverea* from Arizona, *T. abnormis*, from Nevada; p. 264, *Epitragus pruinosus*, from Cal., *E. dentiger*, from Arizona; p. 266, *Cnemodus* (n. g.) *testaceus*, from Cal.; p. 268, *Eurymetopon bicolor*, from Cal., *E. sodalis*, from Cal.; p. 269, *Emmenastus subopacus*, from Arizona, *E. acutus*, from Nebraska; p. 272, *Zopherus elegans*, from New Mexico; p. 274, *Aræoschizus sulcicollis*, from Cal., *A. regularis*, from Arizona; p. 275, *A. armatus*, from Cal.; p. 279, *Centrioptera asperata*, from Peninsula of California; p. 280, *C. variolosa*, from Arizona; p. 282, *Microschatia punctata* Solier (new to our fauna), from Peninsula of California; p. 284, *Asida actuosa*, from Cal., *A. semilævis*, from Nevada; p. 286, *A. luctata*, from Cal.; p. 287, *A. captiosa*, from Cal., *A. consobrina*, from Nevada; p. 289, *A. gibbicollis*, from Peninsula of California; p. 290, *Astrotus regularis*, from Texas; p. 293, *Eusattus costatus*, from Peninsula of California; p. 294, *E. erosus*, from Peninsula of California; p. 296, *Coniontis opaca*, from Cal., *C. robusta*, from Cal.; p. 310, *Eleodes militaris*, from Peninsula of California; p. 314, *E. pilosa*, from Cal. and Nevada; p. 316, *E. tenebrosa*, from Cal.; p. 321, *Embaphion elongatum*, from Nevada, *E. planum*, from Colorado; p. 325, *Argoporis* (n. g.) separated from *Cerenopus*, *A. atripes*, from Mexico; p. 326, *Cerenopus costulatus*, from Peninsula of California; p. 328, *Cratidus rotundicollis*, from Peninsula of California; p. 329, *Amphidora tenebrosa*, from Peninsula of California; p. 330, *A. caudata*, from Arizona; p. 335, *Iphthimus Lewisii* (variety), from New Mexico; p. 346, *Alæphus* (n. g.) *pallidus*, from Cal.; p. 347, *Eupsophus* (n. g.) *castaneus*, from Cal.; p. 349, *Opatrinus Sayi*, from Kansas, *Mecysmus* (n. g.); p. 351, *Conibius elongatus*, from Cal.; p. 353, *Blapstinus auripilis*, from Arizona; p. 354, *B. discolor*, from Cal.; p. 357, *Notibius gagates*, from Arizona; p. 358, *Ulus* (n. g.); p. 360, *Cnemeplatia sericea*, from Cal.; p. 361, *Alaudes* (n. g.) *singularis*, from Cal.; p. 366, *Echocerus* (n. g.); p. 367, *Merotemnus* (n. g.) *elongatus*, from Cal., *Mycotrogus* (n. g.) *piceus*, from Cal.; p. 368, *M. augustus*, from Arizona; p. 369, *Metaclisa marginalis*, from Cal.; p. 371, *Uloma mentalis*, from Texas and Kansas; p. 375, *Phaleria limbata*, from Cal.; p. 377, *P. humeralis*, from Cal.; p. 377, *Anæmia Californica*, from Cal.; p. 379, *Diaperis rufipes*, from Arizona; p. 383, *Platydemia micans*, from South Carolina; p. 385, *Liodemus* (n. g.)

laeve, from North Carolina; p. 387, *Pentaphyllus Californicus*, from Cal.; p. 389, *Eledona fungicola*, from the Middle States; p. 391, *Apocrypha clivinoides*, from Cal.; p. 395, *Helops Edwardsii*, from Oregon.

CEDEMERIDÆ.

J. L. LECONTE (Ann. Mag. Nat. Hist.) describes as new *Asclera nigra* from Vancouver.

G. H. HORN (Trans. Amer. Ent. Soc., ii, 89) describes as new *Oxaxis sericea*, Nevada; p. 88, *Ditylus bicolor*, from Oregon; p. 89, *D. cyanipennis*, from California.

MELANDRYIDÆ.

G. H. HORN (Trans. Amer. Ent. Soc., ii, 88) describes as new *Anelipistus Americanus*, from the White Mts., New Hampshire.

MELOIDÆ.

G. H. HORN (Trans. Amer. Ent. Soc., ii, 90) describes as new *Lytta magister*, from Cal., *L. deserticola*, from Arizona, p. 91, *L. refulgens*, *L. auriculata*, *L. compressicornis*, from Cal., p. 92, *Calospasta nemognathoides*, *C. perpulchra*, from Cal.; p. 93, *C. mirabilis*, from Arizona, *Zonitis longicornis*, from Illinois; p. 94, *Gnathium Texanum*, from Texas; p. 95, *G. nitidum*, from Cal.

CURCULIONIDÆ.

J. L. LECONTE (Ann. Mag. Nat. Hist.) describes as new *Dyslobus* (n. g.) *granicollis* and *D. decoratus*, from Vancouver, *Phymatinus* (n. g.) proposed for *Tyloderes ? gemmatus* Lec.

CERAMBYCIDÆ.

J. L. LECONTE (Ann. Mag. Nat. Hist.) describes as new *Tetropium velutinum*, *Necydalis lævicollis*, *Leptura scripta*, *L. Matthewsii*, *Atimia dorsalis*, all from Vancouver.

ENDOMYCHIDÆ.

G. H. HORN (Trans. Amer. Ent. Soc., ii, 96) describes as new *Mycetina pallida* Colorado, *M. limbata* Cal., *Epipocus unicolor* Colorado.

ENGIDÆ.

G. H. HORN (Trans. Amer. Ent. Soc., ii, 97) describes as new *Engis Californica*, from Cal.

HEMIPTERA.

C. V. RILEY (Amer. Ent., ii) notes the habits of, and reports observations on, several well-known species.

C. V. RILEY (Sec. Ann. Rept. Ins. Missouri) describes

the habits of the Chinch-bug and a few others injurious or beneficial to the agriculturalist.

V. SIGNORET (Annales de la Soc. Ent. France, ix.) describes several *Homoptera* injurious to the vine in Europe and America.

C. STAL (Kongl. Svenska Vetens. Akad., ix.) arranges in systematic order the families *Scutelleridæ*, *Pentatomidæ*, *Pyrrhocoridæ* and *Coreidæ*, including many species from North America.

P. R. UHLER (Amer. Ent., ii.) describes a new species of *Pentatomidæ*.

SCUTELLERIDÆ.

C. V. RILEY (Sec. Ann. Rept., 33, 34) notices the habits of *Corimelaena pulicaria* Germ. as destructive to strawberry plants, and cites *C. lateralis* Fab. and *C. unicolor* Germ.

C. STAL (Enumeratio Hemipt. Kongl. Svensk. Akad., ix) reduces the following to synonyms: *Macraulax tristis* Uhler = *Tetyra bipunctata* H. Schf.; *Pachycoris guttipes* Walk. = *Tetyra farcta* Germ.; *Pachycoris Stallii* Uh. = *P. torridus* Scop.; *Pachycoris complicatus* Uh. = *P. variabilis* H. Schf.; *Pachycoris flavescens* Hope, *P. nebulosus* Germ., *P. hebraicus* Germ., *P. irroratus* Guer., Mayr., Dallas, *P. cordigera* Beauv., *P. cordiger* Mayr. = *Diolcus irroratus* Fab., H. Schf.! *Scutellera viridipunctata* Say = *Diolcus chrysorrhæus* Fab. *Homæmus parvulus* Germ. = *Homæmus grammicus* Wolff. *Pachycoris exilis* H. Schf., *Homæmus æneifrons* Say, *Cimex cretaceus* Panz., *Tetyra illustris* Fab., *Augocoris pallidus* Beauv., *A. unicolor* Burm., *A. rugulosus* H. Schf., *A. Beschii* Germ. = *Augocoris sexpunctatus* Fab., and refers the following to the genera here recorded, *Cimex arcuatus* Fab. = *Tetyra*; *Pachycoris farctus* Germ. = *Tetyra*; *Pachycoris guttatus* H. Schf. = *Orsilochus*; *Pachycoris variabilis* H. Schf. = *Orsilochus*; *Pachycoris scurrilis* Stal = *Orsilochus*; *Pachycoris variegatus* H. Schf. = *Diolcus*; *Cimex Boscii* Fab. = *Diolcus*; *Pachycoris Mexicanus* H. Schf. = *Tiridates*; *Pachycoris rubrocinctus* H. Schf. = *Tiridates*; *Pachycoris obliquus* Germ. = *Sphyrocoris*; *Homæmus punctellus* Stal = *Sphyrocoris*; *Pachycoris obliquus* Guer. = *Symphylus*; *Pachycoris luminosus* Germ. = *Symphylus*. The following new species is also described, *Acantholoma denticulata* Stal, p. 17. from —

PENTATOMIDÆ.

C. V. RILEY (Amer. Ent., ii, 79) reports *Strachia* (*Murgantia*) *histrionica* Hahn, on cabbages in the Southern States.

It is now well known as far north as Washington, D. C., and infests radishes and turnips, as well as cabbages. P. R. U.

C. V. RILEY (Amer. Ent., ii, 203) quotes observations of Mr. W. Saunders in Canada West on the useful nature of *Podisus placidus* Uh. in destroying the larvæ of *Nematus ventricosus* N.

P. R. UHLER (Amer. Ent., ii, 203) gives a short description of *Podisus placidus* Uh., noting the places where it has been thus far found.

J. P. S. (Amer. Ent., ii, 155) notes the recent appearance of *Murgantia histrionica* Hahn, on cabbages in Tennessee.

C. V. RILEY (Sec. Ann. Rept., 32) cites *Arma (Podisus) spinosus* Dallas as a destructive foe of the Colorado Potato-beetle.

C. STAL (Enumeratio Hemipt. Kongl. Svensk. Akad., ix) reports the following synonyms of North American species: *Stiretrus fimbriatus* Say = *Stiretrus (Oncogaster) anchorago* Fab.; *Oplomus rubropictus* Voll., *Asopus rhodomelas* H. Schf. = *Oplomus (Polypæcilus) dichrous* H. Schf.; *Oplomus nigripennis* Dallas = *O. pulcher* Dallas; *Platynopus conspersus* Walker = *Oplomus (Stictocnemus) Proteus* Stal; *Bodetria scutellaris* Walker = *Heteroscelis lepida* Stal; *Pentatoma variegata* Kirby, *Zicrona marginella* Dallas = *Perillus exaptus* Say; *Asopus chrysopterus* H. Schf. = *Canthecona chrysoptera* Stal; *Audinetia aculeata* Ellen., *Arma geometrica* Dallas = *Cimex (Audinetia) spinidens* Fab.; *Canthecona grandis* Dallas, *C. phymatoptera* Guer. = *Mutyca phymatophora* Beauv.; *Podisus punctipennis* H. Schf. = *Apateticus Halys* Dallas; *Arma grandis* Dallas = *Apæcilus grandis* Dallas; *Pentatoma didyma* Beauv. = *Podisus sagitta* Fab.; *Arma modesta* Dallas = *Podisus modestus* Stal; *Arma spinosa* Dallas = *Podisus spinosus* Stal; *Canthecona Gundlachii* Guer. = *Podisus Gundlachii* Stal; *Euthyrhynchus Floridanus* Dallas, *E. punicus* Dallas, *Arma colorata* Walk., *Pentatoma emarginata* Say = *Euthyrhynchus Floridanus* Linn.; *Cimex vacca* Fab., *Pentatoma mucronata* Beauv., *Cimex gazella* Fab. = *Piezosternum subulatum* Thunb.; and describes *Polypæcilus dichrous* H. Schf. from Mexico; *Rhacognathus Americanus* Stal, Illinois, *Coryzorhaphis cruciata* Stal, *Podisus (Apateticus) marginiventris* Stal, *Tylospilus acutissimus* Stal, *T. clælia* Stal, Texas and Mexico.

COREIDÆ.

C. V. RILEY (Amer. Ent., ii, 156) reports *Anasa tristis* DeG. injurious to almost all the varieties of Squash vines.

C. STAL (Enumeratio Coreinorum, Kongl. Svensk. Akad., ix) refers the following to recent genera, *Pachymeria triangulum* Spin. to *Lycambes*; *Archimerus affinis* Guer. to *Lycambes*; *Lygæus typhæus* Fab., *Coreus acridioides* Fab. to *Corynocoris*; *Merocoris distinctus* Dallas to *Corynocoris*; *Pachylis gigas* Burm. to *Thasus*; *Pachylis acutangulus* Stal to *Thasus*; *Cerbus phyllocnemis* Burm., *Melucha lineicollis* Am. and Serv., *Melucha quadrivittis* Stal to *Melucha*; *Archimerus brunnicornis* H. Schf., *Mozena spinicrus* Am. and Serv., to *Mozena*; *Archimerus*

Nestor Stal to *Mozena*; *A. scrupulosus* Stal, *A. lineolatus* Stal, *A. lunatus* Stal, and *A. luteus* H. Schf. to *Mozena*; *Coreus calcarator* Fab., *Coreus alternatus* Say to *Archimerus* Burm.; *Crinocerus triguttatus* H. Schf. to *Sagotylus*; *Cimex cruciger* Tigny, *Coreus crucifer* Guer., *Acanthocerus crucifer* Beauv. to *Acanthocerus*; *Crinocerus lobatus* Burm. to *Acanthocerus*; *Crinocerus tuberculatus* H. Schf. to *Acanthocerus*; *Coreus galeator* Fab., *Crinocerus tibialis* H. Schf. to *Euthoctha*; *Anisoscelis* (*Rhinuchus*) *declivis* Say to *Acanthocephala*; *Diactor alatus* Burm., *Metapodius thoracicus* Dallas to *Acanthocephala*; *Petalotoma unicolor* Guer. to *Chondrocera laticornis* Lap.; *Diactor rufus* Dallas to *Anisoscelis affinis* Westw.; *Anisoscelis albicinctus* Say, *A. phyllopa* Westw., *A. confusa* Dallas to *Leptoglossus phyllopus* Linn.; *Cimex auctus* Fab., *Anisoscelis fasciatus* H. Schf., *A. thoracicus* Guer., *Theognis Schaefferi* Mayr. to *Leptoglossus balteatus* Linn.; *Anisoscelis zonatus* Dallas to *Leptoglossus*; *Hypselonotus scriptus* Hahn, *Anisoscelis scripta* Westw., *A. indocta* Westw., *A. serrulatus* H. Schf., *A. minor* Dallas to *Leptoglossus stigma* Hbst.; *Anisoscelis tibialis* H. Schf. to *Leptoglossus oppositus* Say; *Anisoscelis cincta* H. Schf. to *Leptoglossus*; *Theognis lineosus* Stal to *Leptoglossus*; *Cimex grallator* Hbst., *Anisoscelis antica* H. Schf., *Theognis gonager* Mayr. to *Leptoglossus gonagra* Fab.; *Theognis excellens* Mayr. to *Leptoglossus corculus* Say; *Leptoscelis lunatus* Am. and Serv., *L. fastuosa* Dallas, *Lygæus lunatus* Fab. to *Pthia*; *Cimex ciliatus* Fab., *C. leprosus* Fab., *C. candelabrum* Goeze, *Cimex crenulatus* Fab., *Lygæus dispar* Fab., *Anisoscelis divisus* H. Schf., *Anisoscelis pulverulentus* H. Schf., *Leptoscelis annulipes* Guer., *Leptoscelis obscura* Dallas to *Pthia picta* Drury; *Coreus diffusus* Say to *Spartocera*; *Xiphares* to *Chelinidea*; *Gonocerus apicalis* Dallas to *Ficana*; *Anasa lugens* Stal to *Anasa Andresii* Guer., *Lagaria bellator* Dallas, *Gonocerus puncticornis* H. Schf. to *Anasa bellator* Fab.; *Acanthocerus nebulosus* Beauv., *Anasa mæsta* Dallas, *Anasa spiniceps* Stal, *Anasa scorbutica* Stal to *Anasa scorbutica* Fab.; *Anasa terminalis* Dallas, *Anasa armigera* Stal to *Anasa armigera* Say; *Gonocerus obliquus* Uhler to *Anasa*; *Hypselonotus pulchellus* H. Schf. to *Cebrenis centro-lineata* Westw.; *Paryphes Whitei* Guer. to *Sphictyrtus*; *Nematopus rufoscutellatus* Gray to *Paryphes*; *Alydus diversipes* Westw., *A. affinis* Westw., *A. sinuatus* H. Schf., *Alydus recurvus* H. Schf., *A. pallens* Dallas, *A. atratus* Fab., *A. obscurus* Westw. to *Hyalymenus tarsatus* Fab.; *Alydus sinuatus* Guer. to *Hyalymenus*; *Lygæus eurinus* Say to *Alydus*; *Alydus cruentus* H. Schf., *Lygæus 5-spinosus* Say to *Megalotomus quinquespinosus* Say; *Alydus pallescens* Stal to *Megalotomus*; *Alydus apicalis* Dallas to *Stachyocnemus*; *Paryphes tibialis* Stal, *Coristenia flavicosta* Costa to *Lyrnessus geniculatus* Guer.; *Leptocorisa linearis* Lap., *L. furcifera* Westw., *L. tipuloides* Dallas to *Gerris filiformis* Fab.; *Leptocorisa tipuloides* Am. and Serv. to *Gerris tipuloides* De Geer; *Harmostes costalis*

H. Schf., *H. virescens* Dallas to *Harmostes reflexulus* Say; *Syromsaste reflexulus* Say to *Harmostes*; *Lygæus trivittatus* Say to *Leptocoris*; *Serinetha coturnix* Guer. to *Jadera sanguinolenta* Fab.; *Serinetha wola* Dallas to *Jadera*; and supplies descriptions of the following new species: *Mozena nigricornis*, Cuba; *Nematopus nigro-annulatus*, Mexico; *Machtima Mexicana*, Mexico; *Stenoscelidea ænescens*, Mexico; *Narnia pallidicornis*, Texas; *Amblyomia bifasciata*, Mexico; *Sethenira ferruginea*, Cuba; *Acidomeria rustica*, Mexico; *Namacus annulicornis*, Mexico; *Catorhintha mendica*, Texas and Mexico; *Cimolus obscurus*, Texas and South Car.; *Anasa ruficornis*, Mexico; *A. costalis*, Mexico; *A. impictipes*, Mexico; *Anasa denticulata*, Mexico; *A. acutangula*, Cuba; *Cebrenis robusta*, Mexico; *Dasycoris nigricornis*, Mexico; *Cera-leptus Americanus*, Texas; *Aufeiis impressicollis*, Mexico and Texas.

LYGÆIDÆ.

C. V. RILEY (Sec. Rept., 15) figures and gives an extended account of the Chinch-bug, *Micropus leucopterus* Say.

TINGIDÆ.

C. V. Riley (Sec. Rept., 33) figures *Piesma cinerea* Say, and states that it has been found destroying the blossom buds of grape-vines in Illinois.

PHYTOCORIDÆ.

C. V. RILEY (Amer. Ent., ii, 276 and 291, and Sec. Rept., 114) notes the destructive habits of *Capsus* (*Lygus*) *lineolaris* Beauv. = *C. oblineatus* Say, in sucking the juices of various herbaceous plants, and suggests the means to be employed in checking their depredations.

PYRRHOCORIDÆ.

C. STAL (Enumeratio Hemipt. Kongl. Svensk. Akad., ix, 90—) cites all our species of this family, describing as new *Dysdercus sanguinarius*, Cuba, and indicating the following synonymy, *Pyrrhocoris suturalis* (Fab.) Burm. = *Dysdercus Andreæ* Linn.; *Dysdercus bimaculatus* Stal = *D. obliquus* H. Schf.; *Capsus mimus* Say = *Dysdercus albidiventris* Stal; *Capsus mimus* Say, var. = *Dysdercus mimus* Stal; *Theraneis cliens* Stal = *Stenomæra cliens* Stal; *Largus rubro-cinctus* DeGeer = *Largus succinctus* Linn.; *Capsus succinctus* Say, var. a. = *Largus cinctus* H. Schf.

ANTHOCORIDÆ.

C. V. RILEY (Sec. Rept., 27) gives a figure, and an account of the habits of *Anthocoris* (*Triphleps*) *insidiosus* Say, stating that it preys on the louse of the vine, *Phylloxera vitifoliæ* Fitch.

REDUVIDÆ.

C. V. RILEY (Amer. Ent., ii) notices *Pirates* (*Melanolestes*) *picipes* H. Schf., p. 309, and *Harpactor* (*Milyas*) *cinctus* Fab., p. 340.

MALLOPHAGA.

A. S. PACKARD, jr. (Amer. Nat., iv, 83) Certain Parasitic Insects. In this article a general account of the lice is given, with brief descriptions and figures of *Colpocephalum lari*, *Lipeurus corvi*, *L. elongatus*, *L. gracilis*, *Docophorus buteonis*, *D. hamatus*, *Nirmus thoracicus*, and *Goniocotes Burnettii*, all regarded as new, and it is stated that *Gyropus ovalis* has been found by Mr. C. Cooke as parasitic on the Guinea pig in this country.

(HOMOPTERA.)

CICADIDÆ.

C. V. RILEY (Amer. Ent., ii, 304, 308, 372, and Sec. Rept., 19) adds further notes upon *Cicada septendecim* Linn., *C. parvula* Say, and *C. Cassinii* Fischer.

B. D. WALSH (Amer. Ent., ii, 335) discusses some of the relationships of *Cicada septendecim* Linn., *C. Cassinii* Fischer, and the 13-year brood of the former.

CERCOPIDÆ.

C. V. RILEY (Amer. Ent., ii, 234) notices *Aphrophora spumaria* Linn.

TETTIGONIDÆ.

S. S. RATHVON (Amer. Ent., ii, 371) reports *Diedrocephala coccinea* Forst. to be luminous.

PSYLLIDÆ.

C. V. RILEY (Sec. Rept., 33) notes the introduction of *Psylla pyri* Fabr. into the New England States.

If this is the insect reported by Dr. Harris in his Insects injurious to vegetation, the above notice is erroneous. The species so named by Dr. Harris is not *Psylla pyri* Fab., as I know by examination of his types. It is a species unknown to those who have published memoirs on this family, and probably undescribed. — P. R. U.

APHIDIDÆ.

C. V. RILEY (Amer. Ent., ii, 79) notes *Aphis brassicæ* Linn., also, *A. avenæ* Fab., p. 106, *A. mali* Fab., p. 106, *A. cerasi* Fab., p. 309, and *A. Rudbeckiæ* Fitch., p. 142.

COCCIDÆ.

V. SIGNORET (Annales de la Soc. Ent. France, 4 ème Ser., vol. ix) describes at great length the habits and history of *Phylloxera vastatrix* Planchon (noticing *Pemphigus (Phylloxera) vitifoliæ* Fitch), and gives figures of the species in several of its stages.

C. V. RILEY (Amer. Ent., ii, 353 —) reports extensively on the hab-

its, and discusses the scientific position of *Phylloxera vitifoliae* Fitch. at the same time noticing the European allied species *P. vastatrix* Planchon.

C. V. RILEY (Amer. Ent., ii, 110, 143, 213, 334) gives notes on the habits of *Aspidiotus conchiformis* Gmelin, and also, pp. 110, 181 of *Aspidiotus Harrisii* Walsh, and p. 276 of *Lecanium vitis* Linn.

ORTHOPTERA.

C. THOMAS (Proc. Acad. Nat. Sci., Phila., 1870, 74-84). Descriptions of Grasshoppers from Colorado. This paper, in which a number of new species and a new genus are described, with an account of the habits and distribution of *Caloptenus spretus* by the same author (Amer. Ent., ii, 81-84), is the only American publication of importance which has fallen within the notice of the recorder.

GRYLLIDÆ.

C. THOMAS (Amer. Ent., ii, 206-207) gives a "methodical table" of the genera of Gryllidæ made up from Walker's Catalogue of the family, a list of the species of Gryllidæ of the same work not included in Scudder's Catalogue of Orthoptera, and copies the description of *Æcanthus nigricornis* Walker, from Illinois.

LOCUSTIDÆ.

C. THOMAS (Proc. Acad. Nat. Sci., 1870, 74-77) gives the characters of *Anabrus* Hald.; describes, as new species, *Anabrus Stevensonii*, *A. minutus*, *Thamnotrizon trilineatus*, *Ephippitytha gracilipes*; and mentions *Thamnotrizon purpurascens*, *Orchelimum vulgare*, *O. gracile*, *Udeopsylla robusta* and *Centhophilus* [*Ceuthophilus*] *divergens*; all from Colorado and New Mexico.

ACRIDIDÆ.

C. THOMAS (Proc. Acad. Nat. Sci., 1870, 77-84, and in Errata, 180) describes as new, *Opomola* [*Opomala*] *Neo-Mexicana*, *Pezotettix picta*, *Ædipoda pruinosa* ("= *Gr. trifasciatus* (Say)," errata), *Æ. cincta*, *Æ. Carliniana*, *Æ. neglecta*, *Tomonotus pseudo-nietanus*, *Stauronotus Elliotti*, *Boopedon* (gen. nov.) *nigrum* ("= *Gr. nubilus* (Say)," errata) and *B. flavo-fasciatum*; re-describes *Brachypeplus magnus*; and mentions *Acridium flavo-fasciatum*, *Caloptenus spretus*, *C. bivittatus*, *Pezo-*

tettix borealis, *Ædipoda corallipes*, *Æ. Carolina*, *Æ. æqualis*, *Tomonotus nietanus* and *T. Mexicanus*; all from Colorado and New Mexico.

C. THOMAS (Amer. Ent., ii, 81-84) gives an account of observations on *Caloptenus spretus* during the trip through Colorado and New Mexico, describing its habits quite fully. He also mentions the occurrence of *Brachyepplus magnus* (with which he is inclined to unite *B. virescens*), on the plains bordering the Arkansas, and *Ædipoda corallipes* about Cheyenne, between the Platte and Arkansas, and on each side of the Raton Mountains.

NEUROPTERA.

ÆSCHNIDÆ.

C. V. RILEY (Amer. Ent., ii, 237) notices *Anax Junius* Drury.

PERLIDÆ.

C. V. RILEY (Amer. Ent., ii, 179) notes the habits of *Capnia minima* Newp.

HEMEROBIDÆ.

C. V. RILEY (Amer. Ent., ii, 308) reports the habits of *Mantispa brunnea* Say, also (Sec. Rept., 26) figures, and notes the habits of *Chrysopa Illinoensis* Shimer, and believes it to be the same as the previously described *Chrysopa plorabunda* Fitch.

ARACHNIDA.

J. H. EMERTON (Amer. Nat., iv, 664). The *Lycosa* at Home. A description of the nest of a species of *Lycosa* observed in New York.

ARANEINA.

A. S. PACKARD, jr. (Amer. Nat., iii, 616) notices the great differences in the freshly hatched young from the adult of *Epeira cancer* Hentz.

MYRIAPODA.

E. D. COPE (Trans Amer. Ent. Soc., iii, 65). On some

new and little known Myriapoda from the Southern Alleghanies.

CHILOGNATHA.

E. D. COPE (Trans. Amer. Ent. Soc., iii, 65) describes as n. g. and n. sp. *Petaserpes rosalbus* from the Cumberland Mountains, East Tennessee. He also records *Brachygybe Lecontei* Wood, and *Cambala annulata* Say, as occurring in the valley of East Tennessee, and *Pseudotremia cavernarum* Cope, from the limestone caves of the valley of the Tennessee. He thinks that *Brachygybe* should be referred rather to the *Andrognathidæ* than to the *Siphonophoridæ*.

He also refers to the "secretions of a very acid character" which the *Strongyilia* and *Sugentia* secrete.

PAUROPODA.

A. S. PACKARD, jr. (Amer. Nat., iv, 621) notes the discovery at Salem, Mass., of *Pauropus Lubbockii* n. sp.

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RECORD

OF

AMERICAN ENTOMOLOGY

FOR THE YEAR 1869.

EDITED BY

A. S. PACKARD, JR., M.D.

J. W. M. H.

SALEM.

NATURALIST'S BOOK AGENCY.

1870.

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INTRODUCTORY.



THE favor with which the RECORD for 1868 was received, authorizes us to issue another part for 1869, and encourages the editor in the hope that the entomological public will give their support and coöperation, and make its annual appearance a permanent thing.

The number of American entomologists whose articles or notes are referred to in the Record, is fifty-two; while three hundred and thirty-five new species of North (and Central) American insects have been described in American journals during the year 1869.

RECORD OF AMERICAN ENTOMOLOGY

FOR THE YEAR 1869.

H Y M E N O P T E R A .

E. NORTON (Trans. Amer. Ent. Soc., ii, 211 and 321).
Catalogue of the described Tenthredinidæ and Uroceridæ
of North America. Concluded.

E. T. CRESSON (Trans. Amer. Ent. Soc., ii, 260).
Descriptions of two new species of Arotes.

E. T. CRESSON (Trans. Amer. Ent. Soc., ii, 289). A
List of the North American species of the genus Antho-
phora, with descriptions of new species.

E. T. CRESSON (Trans. Amer. Ent. Soc., ii, 293).
Notes on Cuban Hymenoptera, with descriptions of new
species.

E. T. CRESSON (Trans. Amer. Ent. Soc., ii, 377.
Published Feb., 1870). List of the North American
species of the genus Aleiodes Wesmael.

L. PROVANCHER (Naturaliste Canadien, 17). *Descrip-
tion d'un nouvel Hyménoptère.*

EDITORS OF AMERICAN ENTOMOLOGIST (B. D. Walsh
and C. V. Riley. Vol. i, 122). Wasps and their habits. X

E. T. CRESSON (Proc. Boston Soc. Nat. Hist., xii, 269). Description of North American Bees, No. 2.

EDITORS OF THE AMERICAN ENTOMOLOGIST (i, 149).
The Joint-worm (*Isotoma hordei* Harris.)

E. T. CRESSON (Canadian Entomologist, i, 33). Descriptions of new Canadian Ichneumonidæ.

E. T. CRESSON (Proc. Boston Soc. Nat. Hist., xii, 366). Notes on Mexican Pompilidæ, with descriptions of new species.

W. COUPER (Canadian Entomologist, i, 61). Parasites in the cells of *Vespa maculata*. The parasites are of two species of Ichneumons, one a *Microgaster*.

W. COUPER (Canadian Entomologist, i, 77). Nest of *Crabro sexmaculatus* Say.

E. T. CRESSON (Canadian Entomologist, i, 103). Descriptions of four new species of Canadian Hymenoptera.

B. D. WALSH (Canadian Entomologist, ii, 9). On a species of *Hemiteles*, ascertained by the editor [C. J. S. Bethune] to be parasitic in Canada on the imported Currant Worm Fly, *Nematus ventricosus* Klug.

W. SAUNDERS (Canadian Entomologist, ii, 25). The Grape-seed Insect (*Isosoma vitis* n. sp.).

B. D. WALSH (Canadian Entomologist, ii, 31). The Imported Currant Worm Fly (*Nematus ventricosus* Klug) and its parasite (*Hemiteles nemativorus* Walsh).

C. V. RILEY. First Annual Report on the Noxious, Beneficial, and other Insects, of the State of Missouri, 1869.

A. S. PACKARD, Jr. (Report of the Peabody Academy of Science for 1869, p. 56). List of Hymenopterous and Lepidopterous Insects, collected by the Smithsonian Expedition to South America under Professor James Orton.

ANNALS OF BEE CULTURE FOR 1869. Edited by D. L. Adair, Louisville, Ky., 1869, 8vo.

THE AMERICAN BEE JOURNAL. Edited by Samuel Wagner, contains short articles, original and selected, on the habits of the honey bee.

APIDÆ.

CRESSON (Trans. Amer. Ent. Soc., ii, 289) gives a table of the diagnostic characters of the species of *Anthophora*, and describes as new *A. Smithii*, from Colorado and Dakota Territories; *A. Walshii*, from Illinois; *A. Californica*, from California; *A. montana*, from Colorado Territory; *A. ursina*, from West Virginia; *A. Canadensis*, from Ontario, Canada; *A. occidentalis*, from Colorado Territory; and *A. terminalis*, from Canada, Mass., Conn., Delaware, and Colorado Territory. He also records *A. marginata* Smith, from Orizaba, Mexico; *A. Floridana*, from "Florida" (Smith), Penn. and Illinois; *A. abrupta*, from Mass., W. Va. and Illinois; *A. bomboides* Kirby, from Mass., Conn., Penn. and W. Va.; *A. tricolor* St. Farg., from "Guadaloupe" (St. F.) and Hayti; *A. atrata* Cresson, from Cuba.

CRESSON (Trans. Amer. Ent. Soc., ii, 295) describes as new from Cuba, *Agapostemon obscurata*, *Megacilissa? nigrescens*, *M.? subaurata*, *Megachile curta* and var. *tibialis*, *M. armaticeps*, *Cœlioxys tegularis*, *C. producta*, *Melissodes mimicus*, *Exomalopsis similis* and *Centris armillatus*.

P. H. PHILBROOK (in Amer. Bee Journal) and EDITORS AMERICAN ENTOMOLOGIST, i, p. 241, notice the presence in honey bees of a dipterous larva, probably near *Tachina*, which killed the bees.

EDITORS OF THE AMERICAN ENTOMOLOGIST (ii, 26) note a case of the unnatural secretion of wax in the hive bee.

CRESSON (Proc. Boston Soc. Nat. Hist., xii, 269) describes *Prosopis basalis* Smith, from Colorado Territory; *P. varifrons* n. sp., from Colorado Territory; *P. affinis* Smith, from Conn., New York, Penn., Virginia, Illinois and Colorado Territory; *P. sparsa* n. sp., from Penn.; *P. verticalis* n. sp., from Mass., Penn. and Colorado Territory; *P. antennata* n. sp., from New Jersey; *P. pygmaea* n. sp., from Illinois; *P. Azteca* n. sp., from Orizaba, Mexico; *P. dubiosa* n. sp., from Orizaba, Mexico; *P. Mexicana* n. sp., from Orizaba, Mexico; *P. grossa* n. sp., from Orizaba, Mexico, and *P. limbifrons* n. sp., from Cuba.

PACKARD (Rpt. Peabody Academy, 56) describes as new *Trigona mellicolor*, from between Quito and the Napo River; and notes the occurrence of *Bombus robustus* Smith, and *B. funebris* Smith at Quito, and two, probably new, species of *Xylocopa* at Quito. He also describes as new *Centris braccata* and *C. 4-maculata* taken on the route along the Napo and Marañon Rivers; *Euglossa bombiformis* n. sp., from Quito; and describes the male (not before described) of *Chry-*

santheda frontalis Guérin, taken on the route along the Napo and Marañon Rivers; *Anthophora pilifrons* n. sp., from Quito; *A. conica* n. sp., taken on the route along the Napo and Marañon Rivers; *Anthidium pictifrons* n. sp., from the Napo River; *Augochlora nigro-ænea* n. sp., and *A. fuscipes*, n. sp., taken between Quito and the Napo River, and *Halictus rimosiceps* n. sp., from Quito.

VESPIDÆ.

CRESSON (Trans. Amer. Ent. Soc., ii, 294) records from Cuba, *Odynerus dejectus* Cress.; *O. cingulatus* Cress. and *O. Cubensis* Cress.

EDITORS OF THE AMERICAN ENTOMOLOGIST (i, 135, 138) figure and describe the habits of *Eumenes fraterna* Say, and on p. 138 *Vespa maculata* Fabr.; on p. 141 *Polistes Americana* Fabr. and *P. pallipes* St. Farg? and vol. ii, p. 10, figure and describe the habits of *Odynerus flavipes* Fabr.?

D. A. A. NICHOLS (Amer. Ent., i, 200) notices the habits of *Vespa*.

PACKARD (Rpt. Peabody Academy, 60) notes the occurrence of *Polylbia angulata* Fabr., on the Napo River; describes as new, *Montezumia Andeus*, and notes the occurrence of *Odynerus nasidens* Latr., on the Napo and Marañon Rivers.

CRABRONIDÆ.

COUPER (Can. Ent., i, 77) figures and describes the nest of *Crabro sexmaculatus* Say.

NYSSONIDÆ.

EDITORS OF THE AMERICAN NATURALIST (i, 129) figure and notice the habits of *Stizus grandis* Say, and *S. speciosus* (Drury), and p. 133 figure and describe the habits of *Trypoxylon albitarse* (Fabr.).

WALSH (Amer. Ent., i, 162) describes as new *Stizus brevipennis*, from Illinois, and suggests that the specific name of *S. grandis* St. Farg., a North African species, having been preoccupied by Say, should be changed to *S. gigas*.

RILEY (Report on Noxious, etc., Insects of Missouri, 27) remarks on the habits of *Stizus grandis* Say.

BEMBECIDÆ.

CRESSON (Trans. Amer. Ent. Soc., ii, 294) records from Cuba, *Monedula insularis* Cress., *Bembex argentifrons* Cress., and *B. armata* Cress.

EDITORS OF THE AMERICAN ENTOMOLOGIST (i, 126) figure and treat of the habits of *Bembex fasciata* (Fabr.) and undoubtedly *B. spinolæ* St. Farg.

PACKARD (Rpt. Peabody Academy, 60) describes as new *Monedula 10-maculata*, taken on the route along the Napo and Marañon Rivers.

LARRIDÆ.

CRESSON (Trans. Amer. Ent. Soc., ii, 293) describes as new *Larrada luteipennis*, from Cuba.

SPHEGIDÆ.

CRESSON (Trans. Amer. Ent. Soc., ii, 293) describes as new *Sphex mandibularis*, from Cuba.

EDITORS OF THE AMERICAN ENTOMOLOGIST (i, 126) figure and treat of the habits of *Chlorion cæruleum* (Drury), *Ammophila pictipennis* n. sp., *Pelopæus lunatus* (Drury), and give on p. 174 a synopsis of the genera of this family.

WALSH (Amer. Ent., i, 164) describes as new *Ammophila pictipennis*, from South Illinois and Colorado.

POMPILIDÆ.

EDITORS OF THE AMERICAN ENTOMOLOGIST (i, 131) figure and describe the habits of *Agenia bombycina* Cress., *A. subcorticalis* Walsh and Riley, *A. architectus* Say and *A. mellipes* Say; on p. 136, 163, *Ceropales rufiventris* n. sp.

WALSH (Amer. Ent., i, 162) describes as new *Agenia subcorticalis*, from Illinois, and remarks on *A. architectus* Say, *A. cupida* Cress., and *A. bombycina* Cress. He also describes as new *Ceropales rufiventris*, from Illinois, and remarks on *C. longipes* Smith.

PACKARD (Rpt. Peabody Academy, 61) describes as new, *Pepsis Quitonensis*, from Quito; *P. purpuripes*, *P. vinipennis*, taken on the route along the Napo and Marañon Rivers, and *Pompilus vinicolor*, from Quito.

CRESSON (Proc. Boston Soc. Nat. Hist., xii, 366) describes as new, *Pompilus simulans*, from Orizaba, Mexico; *P. novellus*, from Orizaba, *P. gloriosus*, from Orizaba; *P. confusaneus*, from Orizaba; *P. connexus*, from Orizaba, and records *P. Philadelphicus* St. Farg., *P. æthiops* Cress., *P. lepidus* Say, *P. fulgidus* Cress., *P. coruscus* Smith, *P. flavopictus* Smith, *P. interruptus* Say, *P. algidus* Smith, *P. marcidus* Smith, and *P. torridus* Smith, from Orizaba, and *P. torridus* var. *burrus*, from Vera Cruz. Of the subgenus *Priocnemis* he describes as new *Pompilus impiger* and *P. ruxes*, from Orizaba, and records from the same locality *P. flammipennis* Smith, and *P. cincticornis* Cress. (also from Vera Cruz), and records *P. Sartorianus* Cress., from Vera Cruz, Mexico. Of the subgenus *Agenia* he describes as new *Pompilus auripilis*, from Orizaba, *P. chloris*, from Orizaba, *P. nubifer*, from Orizaba, *P. levipes*, from Orizaba, *P. calcaratus* Cress., var. *accolens*, from Orizaba, and *P. Sumichrastii*, from Orizaba. He also records from Orizaba, *P. azureus* Cress., *P. Mexicanus* Cress. (also from Vera Cruz), and var. *floridus*, from Orizaba, *P. subvirescens* Cress., from Vera Cruz and

Orizaba. He also describes as new, *Ferreola Azteca*, from Vera Cruz, *F. lævifrons*, from Orizaba, and records *F. formosa* Smith, from Orizaba. He describes as new, *Ceropales Mexicana*, from Orizaba, *C. albopicta*, from Orizaba, *C. femoralis*, from Orizaba, and records from the same locality *C. agilis* Smith. He also describes the male of *Mygimima Mexicana*, from Vera Cruz and Orizaba, and records from Vera Cruz and Guatemala *Pepsis Sommeri* Dahlbom.

SCOLIADÆ.

PACKARD (Rpt. Peabody Academy, 61) describes as new *Scolia bisignata*, from Quito.

MUTILLIDÆ.

EDITORS OF THE AMERICAN ENTOMOLOGIST (i, p. 137) notice the habits of *Mutilla coccinea* Fabr.

FORMICIDÆ.

EDITORS OF THE AMERICAN ENTOMOLOGIST (i, 140) notice the habits in winter of *Myrmica lineolata* Say.

NORTON (Rpt. Peabody Academy, 62) notes the occurrence of *Æcodoma cephalotes* (Linn.) at Aspinwall, and on the Napo and Marañon Rivers; of *Odontomachus hæmatodes* (Linn.), *Pachycondyla pedunculata* (Latr.), *Ectatomma tuberculata* (Latr.), *Camponotus atriceps* Smith, and *C. tomentosa* Norton, taken between Quito and the Napo River.

CHRYSIDIDÆ.

EDITORS OF THE AMERICAN ENTOMOLOGIST (i. 135) describe the habits of *Chrysis bella* Cress.

WALSH (Amer. Ent., i, 162) remarks on the habits of *Chrysis*.

ICHNEUMONIDÆ.

CRESSON (Trans. Amer. Ent. Soc., ii, 260) describes *Arotes formosus* Cresson, from Mass. and Canada; *A. vicinus* n. sp., from Mass.; *A. venustus* n. sp., from Mass. and W. Va., and records *A. amœnus* Cresson, from W. Va., Penn., Mass. and Canada, and *A. decorus* Say, from W. Va.

CRESSON (Trans. Amer. Ent. Soc., ii, 377) gives a table for determining the species, and describes as new, *Aleiodes Texanus*, from Texas; *A. fumipennis*, from Illinois; *A. Mexicanus*, from Mexico; *A. fascipennis*, from Mexico; *A. pedalis*, from Mexico; *A. terminalis*, from the Eastern, Middle, Southern and Western States; *A. abdominalis*, from the Eastern and Middle States; *A. lectus*, from Illinois; *A. atriceps*, from Mexico; *A. intermedius*, from the Eastern, Middle,

Southern and Western States; *A. Canadensis*, from Canada; *A. discoideus*, from Illinois; *A. ornatus*, from Mexico; *A. fulvus*, from Canada; *A. aciculatus*, from the Eastern, Middle and Western States; *A. burrus*, from Conn., Illinois and Mexico; *A. Rileyi*, from Missouri; *A. femoratus*, from W. Va.; *A. melleus*, from Mass., and *A. fusciceps*, from Mexico.

NORTON (Trans. Amer. Ent. Soc., ii, 326, published Feb., 1870) describes as new from Conn., *Cryptus lophyri*, *Hemiteles utilis*, *Aleiodes parasiticus*, as parasitic with *Ichneumon rubicundus* Cress., *I. fungor* Nort., *Pimpla inquisitor* Say, *Campoplex genuinus* Nort., on *Lophyrus abietis*.

EDITORS AMERICAN ENTOMOLOGIST (i, 133) mention, but do not describe *Mesostenus ferrum-equinum* n. sp.; and on p. 137 figure *Cryptus junceus* Cress.

CRESSON (Canadian Ent., i, 33) describes as new, from Canada, *Banchus flavescens*, *B. borealis*, *B. Canadensis*, *Arotes amœnus*, *A. formosus*, *Coleocentrus Pettiti*, *Rhyssa Canadensis*, *Ephialtes macer*, *Perithous pleuralis*, *Arenetra Canadensis*, *Lissonota rufipes*, *L. frigida*, *L. brunnea*, *Xorides vittifrons*, *Echthrus niger* and *E. abdominalis*.

CRESSON (Can. Ent., i, 103) describes as new, from Canada, *Euceros Canadensis*, *E. Couperii*, *E. burrus*, with a synopsis of the genus, and *Meniscus Bethunei*.

WALSH (Can. Ent., ii, 9) describes as new from Canada *Hemiteles nemativorus*, with a synopsis of the South and North American species of the genus, and remarks on other species.

WALSH (Can. Ent., ii, 31) makes additional remarks on *Hemiteles*.

RILEY (Report on Noxious, etc., Insects of Missouri, 89) notices *Paniscus geminatus* Say, and a species of *Microgaster*, as reared from cut worms. He also (p. 150) describes as new *Hemiteles* (?) *thyridopteryx* as parasitic on *Thyridopteryx ephemereformis*, and records *Cryptus inquisitor* Say, as parasitic on the same moth. On p. 177 he describes and figures (pl. 2, fig. 7) as new *Hemiteles* (?) *Cressonii*, a parasite of *Gelechia gallasolidaginis* Riley, and *Microgaster gelechia* n. sp., parasitic on the same moth.

PACKARD (Rpt. Peabody Academy, 62) notes the occurrence of *Pellicinus polycerator* Fabr., on the Napo River.

CHALCIDIDÆ.

NORTON (Trans. Amer. Ent. Soc., ii, 327; published Feb., 1870) describes as new from Conn., *Pteromalus verditer* and *Cheiropachus nigro-cyaneus* parasitic on *Lophyrus abietis*.

EDITORS OF THE AMERICAN ENTOMOLOGIST (i, 149) figure and describe the habits of *Isotoma hordei* (Harr.) and figure and describe its parasite *Semiotellus chalcidiphagus* n. sp.; and *Antigaster* (nov.

gen.) *mirabilis* n. sp., p. 157, and figure a species (♂, ♀) of *Eurytoma* and *Decatoma* (p. 155).

SAUNDERS (Can. Ent., ii, 25) describes as new, *Isosoma vitis*, and gives an account of its economy.

RILEY (Report on Noxious, etc., Insects of Missouri, 176) describes as new and figures (pl. 2, fig. 9) *Eurytoma Bolteri*, and figures on pl. 2, fig. 5, a species of *Pirene*, which he does not name.

SHIMER (Trans. Amer. Ent. Soc., ii, 385) describes as new *Eutelus? scymnæ*, parasitic on *Scymnus* in Illinois.

CYNIPIDÆ.

EDITORS AMERICAN ENTOMOLOGIST (i, 101) give an account of the habits and figures of gall of *Cynips quercus-spongifica* O. Sack., *C. q. inanis* O. Sack., with figure of gall, and *C. q. prunus* n. sp., with figures of gall and adult insect. On p. 166 they notice the habits of *Rhodites rosæ* (Linn.). On p. 71, figure and describe the economy of *C. quercus-seminator* Harris; p. 72, figure and describe the economy of *C. quercus-frondosa* Bassett? and record it as coming from North Illinois and Mississippi, and on p. 73 *Antistrophus lygodesmiæ pisum* n. sp. On p. 74 they give a brief synopsis of the North American genera of Cynipidæ Psenides, describing as a new genus, *Antistrophus*.

TENTHREDINIDÆ.

E. NORTON (Trans. Amer. Ent. Soc., ii, 211) records from Mass., *Taxonus nigrisoma* Norton; from Conn., *T. uncinatus* Norton, from Canada and Maryland, and *T. multicolor* Norton, from Mass., Conn., New Jersey and Illinois. He describes as new, *T. amicus*, from Canada; *T. albido-pictus*, from Illinois and Virginia. He records *Strongylogaster terminalis* (Say), from Mass., Conn., New Jersey, Penn. and W. Va.; *S. mellosus* Norton, from Mass., Conn. and Penn.; *S. pallidicornis* n. sp., from Brooklyn, N. Y.; *S. apicalis* (Say), from Conn. and New York; *S. epicera* (Say), from Conn., New Jersey, Iowa; *S. rufocinctus*, from Conn., Maryland and W. Va.; *S. pallipes* (Say), from Conn. and W. Va.; *S. pinguis* Norton, from Conn. and Mass.; *S. tacitus* (Say), from Mass., Conn., New York and Canada; *S. rufescens* Norton, from Maine; *S. longulus* n. sp., from Maine and Mass.; *S. distans* n. sp., from California; *S. multicinctus* Norton, from Virginia; *S. annulosus* n. sp., from Mass.; *S. unicus* Norton, from New York; *S. meritorius* n. sp., from Cuantla, Tierra Caliente, Mexico; *S. nigritorius* n. sp., from Cuantla, Mexico; *S. illuminatus* n. sp., from Cordova, Mexico; *S. fulviventris* n. sp., from Angang, Mexico; *S. lineatus* n. sp., from Angang, Mexico; *S. nigricans* n. sp., from Cuantla, Mexico, and *S. nigredo* n. sp., from Toluca, Mexico; *Pæcilstoma inferentia* n. sp., from Conn.; *Tenthredo grandis* Norton, from Canada,

Conn. and Illinois; *T. mellinus* (Harris), from Maine, Labrador and Chilingunck Depot, Washington Territory; *T. xanthus* Norton, from Pike's Peak, Colorado. *T. ruficolor* n. sp., from Canada; *T. verticalis* Say, from New England, New York, New Jersey, Penn., North-west Territory; *T. lobatus* Norton, from Conn.; *T. angulifera* Norton, from New England and New York; *T. ventralis* (Say), from Arkansas; *T. angulatus* Norton, from Mass.; *T. formosus* Norton, from Maine and Mass.; *T. eximius* n. sp., from the summit of Mt. Washington, N. H., and Maine; *T. dissimilis* Norton, from Northern Illinois; *T. signatus* Norton, from Canada and Maine; *T. variatus* Norton, from Rocky Mountains, Colorado; *T. pleuralis* Cress., from Colorado and Great Slave Lake; *T. variegatus* Norton, from the Rocky Mountains, Colorado; *T. rufopedibus* Norton, from Penn. and Illinois; *T. varipictus* n. sp., from Cape Mendocino, California; *T. varians* n. sp., from Canada; *T. semirufus* Norton, from the Rocky Mountains, Colorado; *T. discrepans* n. sp., from English River, H. B. T.; *T. tricolor* (Harris), from Maine; *T. mutans* n. sp., from Canada; *T. semirubra* Norton, from Maine; *T. piceocinctus* Norton, from New York; *T. pectoralis* Norton, from the Rocky Mountains, Colorado; *T. rufopectus* Norton, from New England, New York, Penn. and Illinois; *T. rufipes* (Say), from "North-west Territory," (Say), Maine, Mass. and Canada; *T. concessus* n. sp., from Good Hope, McKenzie River, H. B. T.; *T. flavomarginis* Norton, from Conn., and the Notch, White Mountains; *T. cinctitibiis* n. sp., from Caribou Island, Straits of Belle Isle, Labrador; *T. fumipennis* n. sp., from Cape Mendocino, California; *T. atroviolaceus* (Harris), from Canada, Maine, Mass., Conn., Penn. and Maryland, var. *tardus*, from Illinois; *T. attractus* n. sp., from English River; *T. semiluteus* Norton, from Conn. and Penn.; *T. confusus* n. sp., United States; *T. 14-punctatus* Norton, from Virginia, and records among the uncertain species, *T. nigro-fasciata* Eschscholtz, from Isle of Unalashka, Russian America, and *T. subcærulea* Esch., from Unalashka.

In the same continued, page 321 (Published Feb., 1870), Norton describes *Lophyrus tropicus* and *L. Cordoviensis*, from Cordova, Mexico, and describes *L. pinus-rigida* Norton, from Mass.; *L. Abbotii* Norton, from Georgia and Indiana; *L. Akhursti*, from New York; *L. abietis* Harr., from Mass. and Conn.; *L. abdominalis* Say, from Georgia; *L. Lecontei* Fitch, from New York and New Jersey; *Lyda ochrocera* Harr., from Mass. and New Hampshire; *L. brunnicans* Norton, from Rocky Mountains, Colorado; *L. maculiventris* Harr., from Mass. and Lake Superior; *L. credita* n. sp., from Mexico; *L. bicolorata* n. sp., from New York; *L. tessellata* Klug, from Penn.; *L. variegata* n. sp., from Cordova, Mexico; *L. fasciata* Norton, from Penn., New York and Conn.; *L. plagiata* Klug, from "Baltimore" (Klug); *L. Canadensis* n. sp.; *L. excavata* n. sp., from Canada; *L. pallimacula* n. sp., from

English River and Conn.; *L. Pacifica* n. sp., from California; *L. ochreata* Say, from Canada, Mass., Conn. and Iowa; *L. luteicornis* n. sp., from Conn.; *L. scripta* (Say), "North-west Territory and Arkansas" (Say) and New Hampshire; *L. multisignata* Norton, from Rocky Mountains, Colorado; *L. rufo-fasciata* Harr., from New Hampshire and Conn.; *L. semicineta* Norton, from Virginia; *L. cavifrons* Cress., from Colorado; *L. inconspicua* n. sp., from Penn. *Cephus abbreviatus* Say, from "Penn." (Say); *C. heteropterus* Harr., from Mass. and New Hampshire; *C. Mexicanus* Guérin, from "Mexico" (Guérin); *Janus flaviventris* Fitch, from "New York" (Fitch); *Phyllocæsus clavatus* n. sp., from San Francisco, Cal.; *P. trimaculatus* (Say), from Conn., Penn., New York, Mass. and Florida; *P. integer* (Harr.), from Mass. and New York; *P. bimaculatus* n. sp., from Conn.; *Xyela ferruginea* Say, from "Arkansas" (Say); *X. tricolor* Norton, from Kansas; *X. infuscata* Harr., from Mass., and *X. minor* n. sp., from Washington, D. C., Penn. and Mass. In the Addenda, p. 367, he describes as new, *Ptilia Texana*, from Texas; *Cladius simplicornis*, from Maine; the male of *Euura salicis-nodus* Walsh, from New York, and *Crasus laticulus* n. sp., from Mass. and Virginia.

EDITORS AMERICAN ENTOMOLOGIST (i, 90) give an account of the habits of *Emphytus maculatus* Norton, with a description of the larva and pupa, with figures; and vol. ii, p. 15, describe and figure and remark on the economy of *Nematus ventricosus* Klug, and *Pristiphora grossulariæ* Walsh; on p. 45, of *Nematus salicis-pomum* Walsh; p. 49, of *Euura salicis-ovum* Walsh, and *E. salicis-gemma* Walsh.

I append the following description by Mr. Norton, of a new species of this family omitted by mistake, from the "List of Hymenoptera" (Rpt. Peabody Academy, 1869), collected by Professor Orton. *Strongylogaster*, Sec. 2. Lanceolate cell without cross vein. *S. Ortonii* n. sp.; length 0.40; exp. of wings 1.00 inch; ♀, color, dark brown, head black, breast and basal half of legs paler brown. Antennæ nearly as long as the whole body, slender, not thickened in middle. Abdomen short; hinder legs rather short; claws bifid; wings very long, their color smoky yellow; their apical one-fourth obscure blackish, stigma semi-transparent yellow; marginal cross nervure not bent; an incomplete cross nervure entering the first discoidal cell from near the base of the first submarginal cell. There is but one bulla in the middle of the third submarginal cross nervure. Under wings with two submarginal cells. South America, between Quito and the river Napo.

T. W. HARRIS (Harris Correspondence, 268) describes the larvæ and habits of *Selandria vitis* Harr., *S. rosæ* Harr.; *Macrophya tibiata* Norton (*Allantus sambuci* Harr. Cat.) and *Nematus ventralis* Say.

URO CERID Æ.

NORTON (Trans. Amer. Ent. Soc., ii, 349, published Feb., 1870) copies the descriptions of *Oryssus hæmorrhoidalis* Harr., from "Mass." (Harr.); *O. maurus* Harr., from "Mass." (Harr.); *O. affinis* Harr., from "Mass." (Harr.), and describes *Xyphydria albicornis* Harr., from Conn., Mass. and New York; *X. maculata* Say, from Canada; *X. tibialis* Say, from Penn.; *X. basalis* Say, from Indiana; *X. abdominalis* Say, from Penn.; *X. attenuatus* Norton, from Penn.; *Urocerus Edwardsii* (Brullè), from New York, Kansas, Chilyunk Depot, Washington Territory, Pacific Railroad Survey, 38 north lat.; *U. zonatus* n. sp., from New York and Maryland; *U. cyaneus* (Fabr.), from Canada, New Hampshire, Conn., New York, Colorado, Chilyunk Depot, Washington Territory and Europe; *U. areolatus* Cress., from New Mexico; *U. nigricornis* (Fabr.), from New York and California; *U. albicornis* (Fabr.), from New England, New York, North-west Territory, Lake Winnepeg, Chilyunk Depot, Washington Territory, Louisiana and England; *U. abdominalis* Harr., from Mass. and New York; *U. Cressoni* Norton, from Penn., New Jersey and New York; *U. tricolor* Provancher, from "Three Rivers, Canada" (Provancher); *U. flavicornis* (Fabr.), from Labrador, Canada, Conn., New York, Colorado, McKenzie River, Great Lake, Washington Territory, Youkon River, Arctic America and England; and *U. caudatus* Cress., from Canada, Colorado, H. B. T., and Youkon River, Arctic America; *Tremex Columba* (Fabr.), from Canada, Northern and Middle States and Missouri; *T. sericeus* Say, Tennessee, Maryland and Missouri; *Teredon* (nov. gen.) *Cubensis* (Cress.), from Cuba, and *T. latitarsis* (Cress.), from Cuba.

PROVANCHER (Naturaliste Canadien, i, 17) describes as new, *Urocerus tricolor*, from Canada, and gives a list of those Uroceri inhabiting Canada.

LEPIDOPTERA RHOPALOCERA.

C. J. S. BETHUNE (Can. Ent., ii, 8) gives a list of twenty-nine butterflies found in Canada, in July.

B. BILLINGS (Can. Ent., i, 45-47) presents a list of butterflies, observed during the season of 1868, in Ottawa, Canada.

W. COUPER (Can. Ent., i, 67-68) records the results of a collection of butterflies made in southern Labrador.

W. H. EDWARDS (Butt. N. Amer., pts. 3-4) continues his accurate illustrations of rare and interesting American butterflies, and commences his promised synopsis of the N. American species. The species of which he treats are *Limenitis Proserpina*, *L. Weidemeyeri*, *Argynnis monticola*, *A. Halcyone*, *A. Leto*, *Lycæna violacea*, *L. Lygdamus*, *Thecla læta*, *T. Acadica*, *T. Ontario*, *T. strigosa*, *Colias Eurytheme* and *C. Keewaydin*.

A. S. PACKARD, JR. (Guide Ins., 257-271) completes his general account of butterflies, with frequent descriptions of their earlier stages, from notes furnished by W. Saunders. He refers especially to *Melitæa Ænone*, *M. Harrisii*, *Vanessa Antiopa*, *V. Milberti*, *V. Californica*, *Grapta interrogationis*, *G. c-argenteum* (fig.), *G. comma*, *G. Faunus*, *Limenitis Misippus* (fig.), *L. Ephestion*, *L. Artemis*, *Morpho Epistrophis*, different species of *Chionobas* (figs.), *Neonympha Eurytris*, *Chrysophanus Americanus*, *C. Thoe*, *Lycæna neglecta*, *L. Comyntas*, *Thecla Niphon*, *T. Acadica*, *T. Mopsus*, *T. strigosa* and another species (fig.), *Hesperia Hobomok*, *H. Wamsutta* (fig.) and *H. Mystic*.

W. SAUNDERS (Can. Ent., i, 53-57, 65-67, 73-77, 93-101) in a series of "Entomological Notes," describes

a large number of larvæ of butterflies, which he has reared from eggs obtained from imprisoned females or captured on the food plants; the species described are *Danais Archippus*, *Limenitis Disippus*, *L. Arthemis*, *Argynnis Myrina*, *A. Bellona*, *Vanessa Antiopa*, *V. Milberti*, *V. interrogationis*, *Pyrameis Cardui*, *Polyommatus Thoe*, *P. Epixanthe*, *Lycæna neglecta*, *Thecla Acadica*, *T. Nippon?* *T. Mopsus*, *T. calanus?* *T. strigosa*, *T. inorata*, *Papilio Turnus*, *P. Troilus*, *Colias Philodice*, *Thanaos?* sp., *Hesperia Mystic*, *H. Hobomok* and *H. Wamsutta*.

S. H. SCUDDER (Proc. Boston Soc. Nat. Hist., xii, 404–408; Ent. Notes, ii, 42–46) reports upon the butterflies collected in Alaska by Mr. Dall. Twelve species are mentioned, two of which, *Melitæa Helvia* and *Papilio Aliaska*, are considered new; and one, *Parnassius Eversmannii*, is recorded for the first time from America. The writer concludes that the fauna is not a distinctive one, but unites characters of the faunæ of the whole of boreal America and the neighboring portions of Asia; the foundation, however, is formed of types characteristic of the great interior of the continent north of the United States.

S. H. SCUDDER (Amer. Nat., iii, 148–149, 212–213; Can. Ent., i, 82, 101–102, ii, 20–21) announces his purpose of publishing an extensive illustrated work upon the butterflies of New England, and asks for assistance from those interested in the subject, in procuring material and lists of species to make the book as complete as possible. Dr. Packard will furnish descriptions of the parasites of butterflies.

S. H. SCUDDER (Amer. Nat., iii, 330–331) gives a list of known and probable food plants of different New England butterflies.

NYMPHALIDÆ.

B. BILLINGS (Can. Ent., i, 45-47) records *Erebia Nephela*, *Hipparchia Boisduvalii*, *Neonympha Eurytris*, *Danais Archippus*, *Limenitis Disippus*, *L. Arthemis*, *Argynnis Cybele*, *A. Atlantis*, *A. Myrina*, *Melitæa Tharos*, *M. Phaeton*, *Pyrameis Atalanta*, *P. cardui*, *P. Huntera*, *Vanessa J-album*, *V. Milberti*, *V. Antiopa*, *Grapta Progne*, *G. comma* and *G. Faunus* from Ottawa, Canada. The only species he mentions rearing are *Limenitis Disippus*, which remained in chrysalis five days, and large numbers of *Vanessa Milberti*,* which emerged in four days.

B. BILLINGS (Can. Ent., i, 60-61, 80), in reply to the enquiries of Mr. Edwards, discusses the food plant and seasons of *Melitæa Phaeton*.

W. COUPER (Can. Ent., i, 67-68) records *Argynnis Chariclea*, *A. Boisduvalii* and *A. Aphrodite?* from southern Labrador.

W. H. DALL (Proc. Boston Soc. Nat. Hist., xiii, 171) states that during the winter, in Alaska, the caterpillar of *Vanessa Antiopa* was twice noticed alive, and the perfect insect observed, May 20.†

EDITORS OF THE AMERICAN ENTOMOLOGIST (Amer. Ent., i, 189-193) in a very interesting and instructive article on imitative butterflies, give an account of the observations of Mr. H. W. Bates upon the *Danaidæ* and *Pieridæ* of the Amazons Valley, call attention to the close resemblance, in coloration and general aspect, between *Danais Archippus* and *Limenitis Disippus*, and endeavor from this mimicry, and from the immunity which the former enjoys from the attacks of predaceous animals, to account for the abundance of this species of *Limenitis* when compared with its congeners. The mode in which *L. Disippus* passes the winter, as a young larva in a leafy hybernaculum, is described, and a detailed notice of the larva added. Wood-cuts are given of this species in all its stages and also of the imago of *Danais*.

W. H. EDWARDS (Butt. N. Amer., pts. 3, 4) describes and figures *Limenitis Proserpina* Edw., from New York and Penn.; *L. Weidemeyeri* Edw., from Pike's Peak; *Argynnis monticola* Behr, from the mountains of California; *A. Halcyone* n. sp., from Colorado, and *A. Leto* Behr, from California.

W. H. EDWARDS (Can. Ent., i, 59-60, 80, 102) discusses the food plant (*Chelone glabra*) and the time of appearance of the larva of *Melitæa Phaeton*.

W. H. EDWARDS (Trans. Amer. Ent. Soc., ii, 312) records *Timetes Eleucha* Hübn., a Cuban species, from Florida.

A. S. PACKARD, jr. (Guide Ins., 257-264) describes briefly the following species: *Melitæa Enone*, *M. Harrisii*, with a wood-cut of a

*What was the temperature of his breeding cage?—S. H. S.

†There is evidently an error of observation in the first instance.—S. H. S.

caterpillar, wrongly referred to this insect, *Vanessa Antiopa*, *V. Milberti*, with a description of the larva by W. Saunders; *G. c-argenteum*, of which a wood-cut is given, *G. comma*, with a short description of the larva by W. H. Edwards; *G. Faunus*, *Limenitis Misippus*, with a figure of the imago, *L. Ephestion*, *L. Arthemis*, *Morpho Epistrophis*, *Satyrus Alope* and *Neonympha Eurytris*. An illustration of *Chionobas Semidea* is also added and wood-cuts exhibiting the limits and direction of the middle band on the under surface of the secondaries in *C. Semidea*, *C. Jutta*, *C. Chryxus*, *C. Calais*, *C. Bore* and *C. Ceno*.

W. SAUNDERS (Can. Ent., i, 55-57, 74-77, 93-95, 105-106) describes the eggs, larvæ and chrysalids of the following species of this family: *Danaïd Archippus*, larva and chrysalis, from *Asclepias*, *Limenitis Disippus*, larva, from willow; *L. Arthemis*, chrysalis, and mention of larva from thorn; *Argynnis Myrina*, egg, larva and chrysalis; *A. Bellona*, egg; *Vanessa Antiopa*, larva, from willow; *V. Milberti*, larva, from nettle; *V. interrogationis*, larva, from hop and elm; *Pyrameis cardui*, larva, from thistle, and *P. Huntera*, larva, from *Gnaphalium*.

S. H. SCUDDER (Proc. Boston Soc. Nat. Hist., xii, 404-406; Ent. Notes, ii, 42-44) records *Vanessa Antiopa*, *Erebia discoidalis* Kirby; *E. Mancinus* Doubl.; *Grapta Faunus* Edw.*; *Melitæa Helvia* n. sp., allied to *M. Anicia* Doubl., and another species of *Melitæa*, perhaps *M. Palla* Boisd., all from Alaska.

S. H. SCUDDER (Amer. Nat., iii, 280) gives a short notice concerning the distribution of *Cynthia Lavinia* Harr.

C. P. WHITNEY (Proc. Boston Soc. Nat. Hist., 85) describes the female of *Limenitis Proserpina* Edw., taken in New Hampshire.

LYCÆNIDÆ.

B. BILLINGS (Can. Ent., i, 46-47) records *Chrysophanus Americanus*, *Lycæna neglecta*, *L. Lucia*, *Thecla Acadica* and *T. falacer* from Ottawa, Canada.

W. COUPER (Can. Ent., i, 67-68) records *Lycæna Lygdamus*, *L. Scudderii* and *L. Lucia*, from southern Labrador.

A. R. GROTE (Trans. Amer. Ent. Soc., ii, 307-308) describes *Fenisea* n. gen., based on *Polyommatus cratægi* Boisd. and Lec., with two species, *F. Tarquinius* (*P. cratægi* B. and L.) and *F. Porsenna* (*P. Porsenna* Scudd.), if the latter has claims to be distinct.

A. R. GROTE AND C. T. ROBINSON (Trans. Amer. Ent. Soc., ii, 310-311) propose the name *Calephelis* for that group of species, placed in the genus *Charis* by Westwood and Hewitson, which do not possess hirsute eyes; two American species are referred to it, *C. cænius* (*Nymphidium pumilum* Boisd. and Lec.) and *C. borealis* (*N. borealis* Grote and Rob.); the synonymy of both species is given.

* Wrongly referred, in the place cited, to *G. gracilis* Grote and Rob.

W. H. EDWARDS (Butt. N. Amer., pts. 3, 4) describes and figures *Lycæna violacea* Edw., from W. Va., Penn. and Canada; *L. Lygdamus* Doubl., from Michigan to Georgia; *Thecla læta* Edw., from Canada, New England and New York, with a description of the earlier stages, by W. Saunders; *T. Ontario* Edw., from Ontario, Canada, and *T. strigosa* Harr., from W. Va., Canada and New England, with a description of the earlier stages, by W. Saunders.

A. S. PACKARD, JR. (Guide Ins., 264-269) gives short descriptions of the imago, and quotes longer ones of the larva and chrysalis, generally from W. Saunders, of *Chrysophanus Americanus*, *C. Thoe*, *Lycæna neglecta*, *L. Comyntas*, *Thecla Niphon*, *T. Acadica*, *T. Mopsus* and *T. strigosa*; figures the chrysalis of an unknown species of *Thecla* found at the White Mountains, and gives a short description of the larva of the same, by F. G. Sanborn.

W. SAUNDERS (Can. Nat., i, 57, 95-100) describes the early stages of the following species: *Polyommatus Thoe*, egg; *P. Epixanthe*, egg; *Lycæna neglecta*, larva, from dogwood; *Thecla inornata*, egg; *T. Acadica*, larva and chrysalis, from willow; *T. Niphon?*, larva, from pine; *T. Mopsus*, larva and chrysalis, from wild cherry; *T. calanus?*, larva and chrysalis, from oak, and *T. strigosa*, larva and chrysalis from thorn.

S. H. SCUDDER (Proc. Boston Soc. Nat. Hist., xii, 406; Ent. Notes, ii, 44) records *Lycæna Lucia* Westw., from Alaska.

PAPILIONIDÆ.

H. BEHR (Trans. Amer. Ent. Soc., ii, 303-304) describes a new genus of Californian *Pieridæ*, *Neophasia*, allied to *Pieris* and *Pontia*, with two species, *N. Menapia* (Feld.) and *N. Terlooii* n. sp. The food plant of the former is presumed to be one of the coniferæ; he also describes two new Californian species of *Anthocaris*, *A. Edwardsii*, larger than other Californian species, and *A. Cooperi*, smaller than *A. Sara* Boisd.

B. BILLINGS (Can. Ent., i, 45) records *Papilio Turnus*, *P. Asterias*, *Pieris oleracea* and *Colias Philodice*, from Ottawa.

C. J. S. BETHUNE (Can. Ent., ii, 8) refers to the extraordinary abundance of *Colias Philodice* in July, 1869.

W. COUPER (Can. Ent., i, 67) records *Papilio Asterias*, *Pieris frigida* and *Colias interior*, from southern Labrador.

EDITORS OF THE AMERICAN ENTOMOLOGIST (Amer. Ent., ii, 60) give illustrations of the different stages of *Pieris Protodice*.

W. H. EDWARDS (Butt. N. Amer., pts. 3-4) has commenced his synopsis of North American butterflies, printing six pages, in which he treats of the species of *Papilio* (20) *Parnassius* (3) *Leptalis* (1) *Neophasia* (2), which, by a curious accident, has been twice introduced,

once before and once after *Pieris* — *Pieris* (14) *Nathalis* (1) *Anthocaris* (1) and *Callidryas* (4) — only the American species north of Mexico and the Antilles are included in the list.

W. H. EDWARDS (Butt. N. Amer., pt. 4) describes and figures *Colias Eurytheme* Boisd., from the western part of the continent, with descriptions of the earlier stages, drawn from notes, by L. K. Hayhurst, of Missouri, and *C. Keewaydin* n. sp., from the valley of the Mississippi to the Pacific; it is also occasionally found in the Middle States and Canada; notes on the variation of this species and its separation from *C. Eurytheme* are given by Henry Edwards.

T. L. MEAD (Amer. Nat., iii, 332) describes a second specimen of *Papilio Calverleyi* Grote — supposed to be a variety of *P. Asterias* — captured in Florida.

L'ABBÉ PROVANCHER (Nat. Can., ii, 13-18) gives a popular account of *Pieris rapæ*, with rough wood-cuts of the larva, chrysalis and imago. The article treats particularly of the amount of damage which this insect inflicts and of the best means of arresting its progress; the author states that previous to its appearance in Quebec, several specimens of *P. oleracea* were taken by him every year, but that since that time not a single specimen had been seen. One chrysalis of *P. rapæ* disclosed a dipterous parasite.

A. S. RITCHIE (Can. Nat., n. s., iv, 293-300) gives an account of the introduction and rapid spread of *Pieris rapæ*, quotes from many sources notices of its destructive habits, and gives full directions how to attempt to check its ravages. He mentions also a hymenopterous parasite of this butterfly, observed in Canada.

W. SAUNDERS (Can. Ent., i, 53-55, 73-74) describes the early stages of three species in this family, as follows: *Papilio Turnus*, egg and larva, from cherry; *P. Troilus*, larva from spice bush, and *Colias Philodice*, eggs, larva and chrysalis, from clover.

S. H. SCUDDER (Proc. Boston Soc. Nat. Hist., xii, 406-407; Ent. Notes, ii, 44-45) mentions the following species from Alaska: *Pieris venosa* Scudd., darker than Californian specimens; *Anthocaris lanceolata* Boisd., *Colias interior* Scudd., *Papilio Turnus* and *P. Aliaska* n. sp., allied to *P. Zolicaon* and *Parnassius Eversmannii* Ménétr.; the latter has been known hitherto only from Central Siberia, and the Alaskan specimen does not altogether agree with Ménétries' representation.

HESPERIDÆ.

B. BILLINGS (Can. Ent., i, 46-47) records *Nisoniades Brizo*, *N. Cattullus*, *Eudamus Bathyllus*, *Hesperia Metacomet*, *H. Hobomok*, *H. Ahaton*, *H. Wamsutta*, *H. Mystic*, *H. Leonardus* and *H. Pocahontas*, from Ottawa, Canada.

W. H. EDWARDS (Trans. Amer. Ent. Soc., ii, 311-312) describes the following new species: *Hesperia Wakulla*, from Florida; *H. Eufala*, from the same, and *H. Melane*, from California.

C. S. MINOT (Proc. Boston Soc. Nat. Hist., xii, 319) describes the male of *Hesperia Metea* Scudd.

C. S. MINOT (Proc. Boston Soc. Nat. Hist., xiii, 320) considers *Hesperia Pocahontas* Scudd. and *H. Quadaquina* Scudd., to be the same.

A. S. PACKARD, Jr. (Guide Ins., 269-271) publishes descriptions by W. Saunders of the larvæ of *Hesperia Hobomok*, *H. Wamsutta* and *H. Mystic*; a wood-cut of the imago of *H. Wamsutta* is added.

W. SAUNDERS (Can. Ent., i, 65-67, 100-101) describes the early stages of the following Hesperians: *Thanaos?* sp., larva, from hazel; *H. Mystic*, egg and larva, from grass; *H. Hobomok*, egg and larva, and *H. Wamsutta*, egg and larva from the same.

LEPIDOPTERA HETEROCERA.

Entomological Correspondence of T. W. Harris, M.D.
Edited by S. H. Scudder, 8vo.

C. T. ROBINSON (Trans. Amer. Ent. Soc., ii, 261).
Notes on American Tortricidæ.

A. R. GROTE (Trans. Amer. Ent. Soc., ii, 308). On
a new genus of Noctuidæ allied to *Dyops*, with remarks
on certain species of *Agrotis*.

C. S. MINOT (Proc. Boston Soc. Nat. Hist., xii, 169).
American Lepidoptera, I, II.

E. B. REED (Canadian Entomologist, ii, 40). A mu-
sical Larva.

P. S. SPRAGUE (Can. Ent., i, 41). Double Broods.

C. J. S. BETHUNE (Can. Ent., i, 43, 85). Notes on
Canadian Lepidoptera.

T. L. MEAD (Can. Ent., i, 47). Musical Larvæ.

C. J. S. BETHUNE (Can. Ent., i, 47). Depraved taste
of a Sphinx.

F. G. SANBORN (Can. Ent., i, 48). Musical Larvæ.

C. J. S. BETHUNE (Can. Ent., ii, 1). Larva infesting
the parsnip.

W. SAUNDERS (Can. Ent., ii, 4). On a supposed new
Arctian.

W. SAUNDERS (Can. Ent., ii, 6). Notes on *Alaria*
florida Guen.

C. S. MINOT (Can. Ent., ii, 27). Brief notes on the
transformations of several species of Lepidoptera.

E. B. REED (Can. Ent., ii, 30). Description of larva
of *Catocala polygama* Guen.

W. SAUNDERS (Can. Ent., ii, 33). Notes on *Hadena*
xylinoides.

EDITORS OF THE AMERICAN ENTOMOLOGIST (i, 143, 209). Cotton Insects.

W. V. ANDREWS (Amer. Ent., ii, 39). Experiments with the Japanese Silk Worm, *Antheræa yama-mai*.

A. S. PACKARD, Jr. (Guide to the Study of Insects), gives a general account of the Lepidoptera, with figures of the scales and their mode of insertion on the wing of *Platysamia Cecropia*, and figures the head (denuded) of *Ctenucha Virginica*, and the rudimentary maxilla of *Actias Luna*, with the rudimentary maxillary palpus, and the labial palpus of the same insect; and the labial palpus of *Platysamia Cecropia*.

A. S. PACKARD, Jr. (Annual Report of the Peabody Academy of Science). List of Hymenopterous and Lepidopterous Insects collected by the Smithsonian Expedition to South America, under Prof. James Orton.

C. J. S. BETHUNE (Trans. of the Nova Scotian Institute of Natural Sciences, vol. 2, part iii, 1868-9, p. 78, published 1870). Nova Scotian Lepidoptera, with additional notes by J. Matthew Jones.

A. S. PACKARD, Jr. (Proceedings Portland Society of Natural History, i, 153-156). The characters of the Lepidopterous family Noctuidæ. This paper enumerates the characters of the family, and of two subfamilies *Noctuinae* and *Catocalinae*, into which the author subdivides the group.

C. V. RILEY. First Annual Report on the Noxious, Beneficial and other Insects, of the State of Missouri, with two plates, 8vo, pp. 181, 7.

SPHINGIDÆ.

HARRIS (Harris Corr., 241) describes, with notes on the habits, the larvæ of *Smerinthus juglandis* Smith; *Ceratonia 4-cornis* Harr.; *Sphinx cinerea* Harr. (pl. ii, fig. 6); *S. convolvuli* Smith; *S. Carolina* Linn.; *Philampelus Achemon* Drury; *Chærocampa pampinatrix*; *C. Chærilus* (Cram.); *Thyreus Abbotii* Swains. (pl. iii, fig. 1).

REED (Can. Ent., i, 40) describes a larva, supposed by the Editor to be that of *Smerinthus excæcatus*, which emitted a singing noise when handled or disturbed.

SPRAGUE (Can. Ent., i, 41) reports that an individual of *Macrosila celeus* G. and R., came out of the pupa in August, and a *M. Carolina* Clem., in September.

MEAD (Can. Ent., i, 47) also reports *Smerinthus* larvæ as making a noise "by contracting the anterior segments, thus rubbing the granulations against each other." Another *Sphinx* larva made a noise on being disturbed by "quickly opening and shutting the mandibles.

BETHUNE (Can. Ent., i, 47) notes the fact of *Amphion nessus* (Cram.) feeding on the stinking carcass of a dog.

SANBORN (Can. Ent., i, 48) describes the sounds emitted by *Cressonia juglandis* (Smith), *Smerinthus excæcatus* Smith, and *S. geminatus* Say.

BETHUNE (Trans. Nova Scotian Inst., i, 80) records from Halifax, N. S., *Ctenucha Virginica* (Charp.) and *Lycomorpha Pholus* (Drury).

RILEY (Rpt. Nox. Ins. Missouri, 136) gives an account of the habits of *Alypia octomaculata* Fabr. (Pl. 1, figs. 18 and 19).

PACKARD (Guide, p. 276) figures *Thyreus Abbotii* Swainson, and larva.

PACKARD (Rpt. Peab. Acad., 62) reports *Chærocampa Tersa* (Drury) from Nanegal; and *Erinnys Alope* (Drury), Upper Amazon.

BETHUNE (Trans. Nova Scotian Inst., ii, 78) records from Halifax, N. S., *Sesia diffinis* Boisd, *Hæmorrhagia Thysbe* (Fabr.), *Darapsa Chærilus* (Cram.), *Deilephila chamænerii* Harr., *D. lineata* Fabr., *Smerinthus geminatus* Say, *S. excæcatus* Smith, *Sphinx kalmiæ* Smith and *S. Gordius* Cram.

RILEY (Rpt. Nox. Ins., Missouri, 95) describes and figures the different stages of *Sphinx 5-maculata* Harr.

MINOT (Can. Ent., ii, 28) describes the eggs of *Ceratonia Amyntor* Hübn.

EDITORS OF THE AMER. ENT. (ii, 23) give the habits and figure the different stages of *Otus Myron* Hübn.; p. 54, of *Philampelus Achemon* (Drury); p. 89, of *Philampelus Satellitia* (Linn.)

ÆGERIADÆ.

HARRIS (Harris Corr., 284) describes the larva of *Ægeria cucurbitæ* Harr.

PACKARD (Guide, 279) figures the larva and pupa of *Ægeria tipuliformis* (Linn.), and the larva of *Melittia cucurbitæ* (Harris).

RILEY (Rpt. Nox. Ins. Missouri, 47) gives an account of the habits, with a figure, of the imago of *Ægeria exitiosa* Say.

ZYGÆNIDÆ.

HARRIS (Harris Corr., 285) describes the larva of *Alypia octomaculata* Fabr. and *Eudryas grata* Fabr., with remarks on its place in nature.

PACKARD (Guide, 281) figures *Psychomorpha epimenis* (Drury).

PACKARD (Rpt. Peab., Acad., 62) describes as new *Glaucopis tricolor*, taken on the route along the Napo and Marañon Rivers.

BOMBYCIDÆ.

MINOT (Proc. Boston Soc. Nat. Hist., xii, 410) notices a spherical form of the cocoon of *Samia Cecropia*, and an unusual mode of suspension of the cocoon of *Callosamia Promethea*.

SPRAGUE (Can. Ent., i, 41) reports raising from the larva *Hemileuca Maia* Walk., part of the brood coming out in October, and one deformed specimen in the following May, and states that according to Miss C. Guild, "of the same brood of larvæ all going into the chrysalis nearly at the same time, part came out in October and others not until the following October, some lying in the chrysalis one year longer than others."

BETHUNE (Can. Ent., i, 43) records *Platarctia parthenos* (Harr.) from Nova Scotia. He also records as occurring in Canada, *Hyphantria textor* Harr., *Orgyia nova* Fitch, *Ichthyura inversa* Pack., *Datana contracta* Walk., *D. Angusii* G. and R., *Cœlodasys biguttata* Pack., *Heterocampa Manteo* (Doubld.), *Janassa lignicolor* Walk. (a species of *Parorgyia* according to Grote and Rob.), *Platysamia Columbia* (Smith) ("reported to have been taken in the neighborhood of Quebec,") and from Nova Scotia *Dryopteris rosea* Grote, and *D. irrorata* Pack. On p. 88 he adds *Drymonia? confusa* Walk. and *Dasychira clandestina* Walk.

SAUNDERS (Can. Ent., ii, 4) describes as new and notes very fully the habits of *Arctia bimaculata* n. sp., with a description of the larva. On p. 19, vol. ii, he notes certain habits of the larva of *Hyperchiria varia* Walk.

MINOT (Can. Ent., ii, 27) describes the eggs of *Actias luna*.

BETHUNE (Can. Ent., ii, 37) records as occurring at Credit, Can. *Cossus plagiatus* Walk.

EDITORS OF THE AMER. ENT. (i, 121) figure and notice the habits of *Telea Polyphemus* (Linn.) On p. 208 they figure the eggs, cocoon and larva of *Clisiocampa Americana* Harr. and *C. sylvatica* Harr. In vol. ii, p. 25, they figure the larva of *Phobetrum pithecium* (Smith); on p. 27, the different stages of *Edema concinna* (Smith); p. 35, they give an account of and figure the different stages of *Thyridopteryx ephemeraformis* Stephens, and p. 59 they figure the larva of *Empretia stimulea* Clemens.

S. S. RATHVON (Amer. Ent., ii, 81) notices some facts in the biology of *Thyridopteryx ephemeraformis* Stephens.

PACKARD (Guide, 284) describes and figures *Lithosia casta* Sanborn, MS., from New Hampshire and New York; p. 288 he figures the larva of *Lagoa crispata* Pack.; p. 289 (Pl. 8, fig. 1, 1a) he describes the transformations of *Empretia stimulea* Clem.; p. 291, and figures and describes as new, *Platœcticus Gloverii*, from Florida.

SAUNDERS (Packard's Guide, 287) describes the larva of *Halesidota maculata* Harris.

PACKARD (Rpt. Peab. Acad., 63) describes as new, *Antarctia bicolor*, taken on the route along the Napo and Marañon Rivers, and *Halesidota pustulata* n. sp., from the Upper Amazon.

BETHUNE (Trans. Nova Scotian Inst., ii, 80) records from Halifax, N. S., *Crocota rubicundaria* Hübn., *Platarctia parthenos* (Harr.), *Pyrrharcia isabella* (Smith), *Orgyia leucostigma* Smith, *Ichthyura albostigma* (Fitch), *I. inversa* Pack., *Datana ministra* (Drury), *Nadata gibbosa* (Smith), *Lophodonta ferruginea* Pack., *Edema albifrons* (Smith), *Dryopteris rosea* Walk., *D. irrorata* Pack., *Anisota stigma* Hübn., and *A. rubicunda* Fabr.

RILEY (Rpt. Nox. Ins. Missouri, 144) figures (cuts 81, 82, 83) and describes the transformations and habits of *Orgyia leucostigma* Smith, and on p. 147, fig. 8, *Thyridopteryx ephemeraformis* Harr.

MELSHEIMER (Harris Corr., 112) describes the larva of *Thyridopteryx ephemeraformis*; p. 113, 117, 242, 246, 299, the habits of *Perophora Melsheimerii* Harr.

HARRIS (Harris Corr., 114) describes the larva of *Notodonta sexgutata* Harr. MS. (*Gramatophora trisignata* Doubld.), with a figure; pp. 175, 247, 301, the larva (with figures of moth and larva) of *Limacodes ephippiatus* Harr. MS. (*Empretia stimulea* Clem.); p. 176, 300, notices and figures the larva of *Limacodes scapha* Harr., *L. pithecium* (Smith), also p. 244, *L. cippus* (Smith), with a figure; p. 245, *Gluphisia ulmi* Harr. MS.; p. 286, the larva of *Arctia arge* Drury; *A. Americana* Harr? or *scribonia* Stoll?; *A. Virginica* Fabr.; *Euchaetes Egle* (Drury, pl. ii, fig. 5); *Lophocampa caryæ* Harr.; *L. maculata* Harr. (pl. iii, fig. 9); *L. tessellaris* Smith; *Orgyia leucostigma* Smith; *Orgyia* sp.; *Clisio-campa sylvatica* Harr.; *Gastropacha Americana* Harr.; *G. Velleda* Stoll; *Attacus Luna* Linn. (pl. iv, fig. 14); *A. Polyphemus* Linn. (pl. iv, fig. 17); *A. Cecropia* Linn.; *Saturnia Io* Fabr.; *Ceratocampa regalis* Fabr.; *Dryocampa senatoria* Smith (pl. ii, fig. 9; iv, fig. 12); *D. stigma* Fabr.; *D. pellucida* Smith; *Seiroidonta bilineata* Gr. and Rob. (pl. i, fig. 5); *Gluphisia? ulmi* Harr. MSS. (pl. ii, figs. 2, 3); *Notodonta unicolornis* Smith (pl. ii, fig. 18); *N. concinna* Smith (pl. i, fig. 3); *N. anguina* Smith (pl. i, fig. 12); *N. albifrons* Smith; *Notodonta* sp. (pl. i, fig. 6); *Heterocampa?* sp.; *Astasia torrefacta* Smith; *Pygæra gibbosa* Smith?; *P. ministra* Drury (pl. ii, fig. 4); *Clostera Americana* Harris (pl. iii, fig. 3).

NOCTUIDÆ.

GROTE (Trans. Amer. Ent. Soc., ii, 308) gives the characters of *Litoprosopus* gen. nov., to which he refers *L. Hatuey* (Poey), *L. confligens* (Walk.) and *L. futilis* (Gr. and Rob.). He also refers to the genus *Agrotis* four species described "under the genus *Noctua* as amended by Guenée," i. e., *Agrotis brunneicollis* Grote, *A. cupida* Gr., *A. alternata* Gr., and *A. vittifrons* Gr. He also states that he has "elsewhere erroneously referred the *Noctua lubricans* of Guenée as identical with our common *Agrotis clandestina* (Harris)."

BETHUNE (Can. Ent., i, 47) records as living in Canada *Xanthia ferrugineoides* Guen., *Anomis grandipuncta* Guen. and *Xylina Bethunei* Gr. and Rob. On p. 85 he adds *Acronycta occidentalis* G. and R., *A. funeralis* G. and R., *A. morula* G. and R., *A. superans* Guen., *Hydræcia sera* G. and R., *Caradrina multifera* Walk., *Agrotis murænula* G. and R., *A. subgothica* Haworth, *Graphiphora triangulum* Guen., *G. Dahlii* Hübn., *Xanthia ferruginea* Hübn., *Cucullia convexipennis* G. and R., *Anarta luteola* G. and R., *A. Acadiensis* Bethune, *Phesia mappa* G. and R., *Nænia typica* Linn., *Syneda Hudsonica* G. and R., *Parthenos nubila* Hübn., *Erebus odora* Linn., *Remigia latipes* Guen.

SAUNDERS (Can. Ent., ii, 6) describes the larva and habits of *Alaria florida* Guen.

MINOT (Can. Ent., ii, 28) describes the eggs of *Mamestra arctica* Boisd.

REED (Can. Ent., ii, 30) describes the larva of *Catocala polygama* Guen.

SAUNDERS (Can. Ent., ii, 33) describes the different moults of the larva of *Hadena xylinoides*.

EDITORS OF THE AMERICAN ENTOMOLOGIST (i, 206) figure the larva of *Gortyna nitela* Guenée. On p. 209 they give the natural history and figure the different stages of *Anomis xylina* Say, *Heliothis armigera* Hübner (see also p. 43, vol. ii) and *Leucania unipunctata* Haworth. In vol. ii, 26, they figure *Amphipyra pyramidoides* Guen.; p. 62, they describe the larva and habits, with a figure, of *Prodenia cammelinæ* (Smith).

PACKARD (Guide, 305) describes and figures the larva of "*Acronycta aceris* var. *Americana*" Harr. Corr., and the adult of *Agrotis tessellata* Harris; p. 316, he describes the larva and adult, with figures (pl. 8, fig. 3, 3a), of *Xanthoptera semicrocea* Guen., from Florida; and p. 317, he describes and figures (pl. 8, figs. 4, 4a) the larva and adult of *Catocala ultronia* Hübn.

SAUNDERS (Packard's Guide, 317) describes the larva of *Drasteria erectea* Cramer.

PACKARD (Rpt. Peab. Acad., 63) describes as new, *Agrotis Ortonii* and *Palindia geminata*, from the Upper Amazon.

BETHUNE (Trans. N. Scotia Inst., ii, 82) records from Halifax, N. S., *Pseudothyatira cymatophoroides* Guen., *Grammaphora trisignata* Walk., *Diphthera fallax* H. Sch., *Acronycta obliterata* Smith, *Leucania pallens* Linn., *Hydræcia lorea* Guen., *H. nictitans* Walk., *Nephelodes minians* Guen., *N. rubeolans* Guen., *Xylophasia lignicolora* Guen., *X. lateritia* Esp., *Mamestra arctica* Encyc., *M. adjuncta* Guen., *Celæna herbimacula* Guen., *Agrotis juculifera* Guen., *A. devastator* Harr., *Graphiphora bicarnea* Guen., *G. lubricans* Guen., *Ceramica exusta* Guen., *Phlogophora iris* Guen., *P. anodonta* Guen.?, *Eurois herbida* Den., *Hadena xylinoides* Guen., *Cucullia asteroides* Guen., *Heliothis exprimens* Walk., *Anarta Acadiensis* n. sp. (with a figure), *Plusia æroides* Grote, *P. ampla* Walk., *P. simplex* Guen., *P. festucae* Albin, *P. thyatyroides* Guen., *Scoliopteryx libatrix* (Linn.), *Catocala relicta* Walk., *C. concumbens* Walk., *Ophiusa histriaris* Hübn., *Drasteria erechthea* (Cram.)

RILEY (Rpt. Nox. Ins., Missouri, 67) gives a detailed account of cut-worms, mentioning at length and describing the transformations and habits of *Agrotis inermis* Harris (pl. 1, figs. 1-4), *A. Cochranii* Riley (fig. 26a, b), *A. scandens* n. sp. (pl. 1, figs. 5-7), *Noctua clandestina* (Harr.) (pl. 1, fig. 13, and larva, cut 27), *Agrotis telifera* Harr. (pl. 1, figs. 8-10, and larva, cut 28), *A. subgothica* Haw. (cuts 29a, b), *A. juculifera* Guen. (pl. 1, fig. 11), *Mamestra devastator* Bracc (larva, cut 20), *Hadena subjuncta* Gr. and Rob. (pl. 1, figs. 14-17), *Celæna renigera* Steph. (moth and larva, cut 31), *H. amputatrix* Fitch, *Prodenia cammelinæ* Guen. (pl. 1, fig. 12, larva). On p. 92, he describes, with figures of the larva and adult, *Gortyna nitela* Guen.

HARRIS (Harr. Corr., 175, 318) describes and rudely figures the larva of *Drasteria erechthea* Cram.; p. 311 describes the larvæ of *Apatele Americana* Harr., *Acronycta sagittaria* Harr. (*A. occidentalis* Gr. and Rob.), *A. ulmi* Harris MSS. (pl. iii, fig. 10), *A. Americana* Harr. MSS., (pl. 3, fig. 2); *A. pruni* Harr., MSS. (pl. 4, fig. 13); *A. salicis* Harr., MSS.; *Gortyna?* sp., *Agrotis* sp., *Hadena amica*, *Mamestra persicariæ?* var. *Americana* (pl. 1, fig. 11), *M. leucostigma* Harr. MSS., *M. picta* Harr., *Noctua* sp., *Noctua* sp. (pl. 1, fig. 9), *Parthenos nubilis* Hübn., *Catocala* sp. (pl. 4, fig. 8).

PHALÆNIDÆ.

MINOT (Proc. Bost. Soc. Nat. Hist., xii, 83) describes as new *Fidonia bicoloraria*, from Mass.; *F. Faxonii* (see also p. 171), from the New England States; *Anisopteryx?* *strigataria*, from Boston; *Tephrosia fumataria*, from Mass.; on p. 169 *Caberodes marginaria*, from Mass.; *Cleora pulchraria*, from Mass.; *Anisopteryx strigularia*, from the sides and near the summit of Mount Washington, N. H.

BETHUNE (Can. Ent., i, 88) records as Canadian *Anisopteryx vernata* Peck, and *Larentia geminata* G. and R.

MINOT (Can. Ent., ii, 28) describes the eggs and recently hatched larva of *Tetracis lorata* Grote.

EDITORS OF THE AMERICAN ENTOMOLOGIST (ii, 13) figure the different stages and describe the habits of *Abraxas ribearia* Fitch.

PACKARD (Guide, 319, pl. 5, 5a) figures and describes the larva and imago of *Angerona crocataria* Fabr.; p. 320 (pl. 8, figs. 7, 7a) the larva and moth of *Nematocampa filamentaria* Guen.; p. 321 (pl. 8, fig. 6) the larva of *Ennomos subsignaria* (Hübner), and adult (fig. 248); p. 325 (pl. 8, fig. 10, 10a) the larva and imago of *Cidaria diversilineata* Hubner.

PACKARD (Rpt. Peab. Acad., 62) records *Cydimon Leilus* (Linn.) from the upper Amazon, and describes as new, *Chærodes bipunctaria*, *Epione mustelinaria*, from the upper Amazon (?) and records *Panthera pardalaria*, from the upper Amazon (?)

BETHUNE (Trans. N. Scotian Inst., ii, 87) reports from Halifax, N. S., *Angerona crocataria* (Fabr.), *Tetracis crocallata* Guen., *T. aspilata* Guen., *Amphidasys cognataria* Guen.?, *Zerene catenaria* (Drury), *Lozogramma defluaria* Walk., *Scotosia undulata* Linn., and *Cidaria diversilineata* (Hübner).

RILEY (Rpt. Nox. Ins. Missouri, 139) describes as new, *Aplodes rubivora* (pl. 2, fig. 25), with a notice of its habits, and on p. 179 describes the transformations (pl. 2, figs. 16-21) of *Hæmatopis grataria* Fabr.

HARRIS (Harr. Corr., 320) notes the habits of *Ennomos magnaria* Guen.; and describes the larva of *Abraxas ribearia* Fitch, *Zerene catenaria* Drury, and *Nematocampa filamentaria* Guen.

PYRALIDÆ.

PACKARD (Guide, 327) figures and describes the transformations of *Hypena humuli* Harris; p. 329 describes the larva and habits of *Aglossa cuprealis*, and on p. 331 figures and describes the habits of *Pempelia grossulariæ* n. sp.

BETHUNE (Trans. N. Scotian Inst., ii, 87) reports *Pionea enusalis* Walk., from Halifax and Canada.

RILEY (Rpt. Nox. Inst. Missouri, 140) describes and gives an account of the transformations of *Pempelia grossulariæ* Pack. (pl. 2, fig. 17, and cut 79), and on p. 166 figures and describes the different stages of *Gallerea cereana* Fabr.

HARRIS (Harris Corr., 322) describes the larva of *Hypena humuli* Harris, and of *Pionea enusalis* Walk. (pl. 4, fig. 18).

TORTRICIDÆ.

ROBINSON (Trans. Amer. Ent. Soc., ii, 261) describes and figures *Tortrix rosaceana* (Harris), from Mass., New York, Penn., Florida and

Texas; *T. gurgitana* n. s., from W. Va., Illinois and Penn.; *T. purpurana* (Clemens), from Penn.; *T. lamprosana* n. s., from New York, Penn. and Mass.; *T. limitata* n. s., from Penn.; *T. zapulata* n. s., from Illinois; *T. Sanbornana* n. s., from Texas, Florida, Mass., Penn. and New York; *T. furvana* n. s., from New York and Mass.; *T. fractivitana* (Clem.), from Mass. and Virginia; *T. fuscolineana* (Clem.), from Virginia and Mass.; *T. vesperana* (Clem.), from Mass., Texas, New York and Penn.; *T. pallorana* n. s., from Ohio and Illinois; *T. lata* n. s., from Illinois and Penn.; *T. alisellana* n. s., from Ohio; *T. parallela* n. s., from New York and Penn.; *T. grisea* n. s., from Ohio; *T. fumosa* n. s., from Ohio; *T. nigridia* n. s., from Ohio, Penn. and Mass.; *T. Péttitana* n. s., from Canada West, Ohio and Illinois; *T. breviornatana* (Clem.), from Mass., Canada West and New York; *T. caryæ* n. s., from Illinois and Penn.; *T. furcatana* (Walk.), from Penn.; *T. Rileyana* Grote; *T. melaleucana* (Walk.), from Virginia, Penn. and Maine; *T. puritana* Rob., from Mass. and Illinois; *T. violaceana* n. s., from New York and Mass.; *T. algidana* Moeschler, from "Labrador" and Mount Washington; *T. reticulatana* (Clem.), from New York, W. Va. and Penn.; *T. sulfureana* (Clem.), from Mass., New York, Penn., W. Va., Ohio, Illinois, Florida and Texas; *T. albicomana* Clem., from Mass., New York, Penn., W. Va., Ohio and Texas; *T. confusana* n. s., from Penn.; *T. irrorea* n. s., from New York; *T. paludana* n. s.; from Penn. and New York; *T. humerosana* (Clem.), from New York, Mass., Canada West and Penn.; *T. cerasivorana* (Fitch.), from New York and Mass.; *T. minuta* n. s., from Texas; *T. cana* n. s., from Penn.; *T. discopunctana* (Clem.), from Mass., New York and Penn.; *T. peritana* (Clem.), from New York and Penn.; *T. flaccidana* n. sp., from Texas; *T. sentana* (Clem.), from Mass., New York and Penn.; *T. flavedana* (Clem.), from Mass., New York and Penn.; *T. laterana* n. s., from Penn.; *T. incertana* (Clem.), from Mass., New York, Penn. and Ohio; *T. lutosana* (Clem.), from Mass., New York and Penn.; *Teras flavivittana* (Clem.), from New York and Mass.; *T. perspicuana* n. s., from Penn.; *T. hastiana* (Linn.), var. *divisana* Hübn., from Europe, Penn. and Mass.; *T. maculidorsana* (Clem.), from Penn. and Maine; *T. inana* n. s., from Mass. and New York; *T. viburnana* (Clem.), from Penn.; *T. nigrolinea* n. s., from Canada West; *T. placidana* n. s., from Penn.; *T. trisignana* n. s., from W. Va.; *T. semiannula* n. s., from Penn.; *T. deflectana* n. s., from Penn.; *T. gallicolana* (Clem.), from Mass. and Illinois; *T. Brewsteriana* n. s., from New York; *T. celiana* n. s., from New York and Mass.; *Conchylis Agassizii* n. s., from Texas; *C. quinquemaculana* n. s., from Penn.; *C. Ridingsana* n. s., from Colorado Territory; *C. bimaculana* n. s., from Texas; *C. dorsimaculana* Rob., from Penn.; *C. promptana*, from Penn. and Texas; *C. angulatana*, from Penn. and W. Va.; *C. argentiimitana* n. s., from

Penn.; *C. labeculana* n. s., from Penn.; *C. lepidana*, from Penn.; *C. interruptofasciata* n. s., from Penn., and *C. Bunteana* n. s., from Penn.

SHIMER (Trans. Amer. Ent. Soc., ii, 394; published Feb., 1870) describes as new, *Grapholitha caryæ*, from Illinois.

BETHUNE (Can. Ent., i, 89) records as Canadian species, *Carpocapsa pomonella* Linn., and *Anchylopera fragariæ* Walsh and Riley.

EDITORS OF THE AMERICAN ENTOMOLOGIST (i, 89) describe and figure *Anchylopera fragariæ* n. sp. On p. 112 they figure and describe the habits of *Carpocapsa pomonella* (Linn.) On p. 177 they figure and give an account of the habits of *Penthina vitivorana* Pack.

PACKARD (Guide, 334) describes as new, *Tortrix oxycoccana*, from Mass.; *Lozotænia fragariana*, from Maine; *L. gossypiana*, from the Cotton States; *Penthina vitivorana* (pl. 8, fig. 22), from Ohio; p. 338, *Anchylopera vacciniæ* (pl. 8, fig. 21), from Mass.

RILEY (Rpt. Nox. Ins. Missouri, 62) describes, with figures, the habits and transformations of *Carpocapsa pomonella* Linn. On p. 133 (pl. 2, figs. 29, 30, and cut 76) he figures and describes the habits of *Penthina vitivorana* Pack. On p. 142 he describes and figures (pl. 2, figs. 26 and 27, and cut 80) *Anchylopera fragariæ* Walsh and Riley, and gives an account of its habits. On p. 153 he describes and figures (pl. 2, figs. 3, 4, and cut 85) *Tortrix Rileyana* Grote, and notices a phytophagic variation in the imago, "caused by the difference in food."

HARRIS (Harris Corr., 324) describes a larva which rolls the leaves of *Tilia Americana*.

TINEIDÆ.

BETHUNE (Can. Ent., ii, 1) describes the larva, pupa and habits of *Depressaria Ontariella* n. sp. On p. 19 he quotes the opinion of James Angus that this may be the European *D. heracliæna*.

PACKARD (Guide, 349) describes as new, *Depressaria robiniella* (pl. 8, fig. 14), with an account of its habits; p. 353 (pl. 8, fig. 15, 15 a, 15 b, 15 c) *Lithocolletis geminatella*; p. 354 (pl. 8, fig. 19, 19 a) *L. nidificansella*; p. 355 (pl. 8, fig. 18, 18 a, 18 b) *Lyonetia saccatella*, from Mass.

RILEY (Rpt. Nox. Inst. Missouri, 151) figures (pl. 2. figs. 22, 23) and describes the transformations of *Æta compta* Clem.

PTEROPHORIDÆ.

PACKARD (Guide, 356, pl. 8, fig. 23, 23 a, 23 b) figures *Pterophorus periscelidactylus* Fitch, in its different stages.

RILEY (Rpt. Nox. Inst. Missouri, 137) describes and figures (pl. 2, figs. 15, 16) *Pterophorus periscelidactylus* Fitch, and on p. 180 describes

as new, *Pterophorus carduidactylus* (pl. 2. figs. 13, 14, and cut 98) and gives an account of its habits.

HARRIS (Harris Corr., 323) figures and describes the case, and the larva of *Porrectaria?* sp.

DIPTERA.

THE contributions to dipterology, in this country, during the past year, have been very scanty. Some observations, connected with practical entomology, and a few biological facts, constitute the sum total of the additions made to our knowledge in this branch of science. If the increase of knowledge has been slender, its diffusion has been better provided for in the chapters on Diptera of Mr. Packard's "Guide." And there is every reason to hope that this useful book, by familiarizing the popular mind as well as the eye, with the various forms of diptera, will encourage the study of this order, or, at least, increase the number of collectors.

However meagre dipterology has appeared among us in 1869, there is a good deal of comfort to be derived from the healthy direction it is taking. Together with the other branches of entomology in this country, it has assumed an eminently practical tendency. By *practical* I do not merely mean the relation of entomology to the dollars and cents question, but its relation to living nature in general. The more this science progresses in America, the more it becomes apparent that its development does not depend on the necessity of putting in order a museum and classifying some boxed up specimens, but from the craving to understand living nature and the desire to master it, when necessary. This craving for knowledge among the masses in America is as remarkable as the keen eye for observation, and the open mind which are brought into play to satisfy this instinct. Entomologists often receive letters of enquiry from farmers, gardeners, mechanics and other persons, mostly deficient in a prepar-

atory knowledge of natural history; and they generally have every reason to be astonished at the fulness and accuracy of the observations of these men of manual labor, as well as at the shrewdness displayed in the management of their experiments. Very often, an investigation is fully carried out by them, and all that they apply for to a scientific entomologist is, the scientific name of the specimen. But here lies the difficulty. In great many cases, this name cannot be given with any degree of certainty on account of the insufficiency or the absolute want of specific descriptions.

If we have reason to rejoice at the healthy direction American entomology is taking, it is not without an eye to those, unfortunately very numerous persons, who seem to think that the so-called descriptive entomology is the aim and end of science. When a Champollion, or a Grotefend attempt to study hieroglyphic or cuneiform inscriptions, do they look upon the compilation of a dictionary of these modes of writing as the ultimate aim of their efforts? It is evident that the dictionary in this case is only a stepping stone towards the real end in view, the bringing to light of the treasures of facts, buried in ancient inscriptions. Descriptive natural history furnishes the dictionary of nature; it gives names to objects, which without these names it would be impossible to designate. When a gardener has observed the operations of some noxious fly, he applies to you for its *name*, because the knowledge of the name will enable him to communicate to others the knowledge he has acquired of the habits of the insect.

But just in this matter, that of *names*, American entomology, and especially American dipterology, are found wanting. We have no dictionary of American flies, that is, no hand-book of American dipterology. Probably

nine-tenths (at least) of the American diptera are not described at all; among the existing descriptions of the remaining tenth, a great part are imperfect and scattered.

Whatever the cause may be, it is evident that the study of diptera is not a favorite one among entomologists. Its devotees in Europe are few and far between, and it is hardly to be expected that it will meet with more favor here. And still we want *names*, we want a dictionary, because the number of persons is large who are fond of observing living nature, or engaged, in consequence of their avocations, in the struggle against the agencies of nature. The question is, how is this want to be supplied, effectually and quickly?

In matters concerning the common weal, whenever the good-will or the ability of private individuals is found wanting, the state is apt to intervene and to supply the deficiency. Could not, in entomological matters, a proper organization provide for that, which the zeal of isolated volunteers is too slow to accomplish? Could not a plan be devised by which the existing want of systematic descriptions of North American diptera would be supplied with tolerable completeness, within a comparatively short time? I look upon such a scheme as feasible, and of comparatively easy execution, provided it is carried out with sufficient energy and perseverance.

The work of a descriptive entomologist usually consists of two distinct operations: collecting and describing. Generally an entomologist has to collect for several years, before he can attempt to monograph some family, especially one which has never been monographed before. Often, also, a good describer may be a bad collector, and *vice versa*. Now it seems to me that in a country like this, where so much remains to be done by future monographers, it would be a good plan to organize this labor

so as to have it carried on as a systematic exploration. The work would devolve on the existing scientific societies. They would (one and all) employ regular collectors, who would prepare the materials for future describers. With a little training they would be able to acquire enough special knowledge in order not to neglect any family nor any locality. In a few years the materials thus stored would be more considerable than anything that a single collector, confined at each season to a single locality, could bring together. Then would be the time for the monographist to step in. The families, either best represented in the collections, or monographs of which, for some reason or other, might appear most desirable, would be entrusted, for the purpose of description, to some competent person, either at home or abroad. The whole of the materials, relating to that family, and accumulated either in one, or in several museums, would be given over to him, upon the positive assurance that he would accomplish the work within a definite period, under specified conditions. Upon the completion of the work, the typical specimens, thus obtained, would be restored to the respective museums for permanent preservation.

Unless some such scheme for a systematic exploration by scientific societies is adopted, the progress of dipterology in America will be slow, and before many years will be seriously impeded by an inextricable synonymy.

A speedy exploration of this country is desirable for another reason still, which I will briefly notice before concluding. With the disappearance of the native plants, and the rapid spreading of foreign ones, especially weeds and grasses, many species of insects, whose existence is dependent on plants, are becoming more and more rare. The longer a locality is settled the more European plants

predominate around it. The majority of the weeds and grasses growing around cities and villages, are European. This circumstance especially affects diptera. The larvæ of the species of the beautiful genus *Trypeta* inhabit the heads of composite plants, each species confining itself generally to the same plant. It is very probable that within a comparatively short period a good many of these species, most of which are never common, will become entirely extinct, in consequence of the narrow limits and disconnected localities to which their breeding-plants will have been driven. Thus valuable scientific facts, connected with the aboriginal fauna of this continent, will be lost forever.

Let us hope that the suggestions thrown out in the preceding pages will not be entirely lost in drawing the attention of naturalists to the much neglected order of Diptera.

R. OSTEN SACKEN (Trans. Amer. Ent. Soc., ii, 299).
Biological Notes on Diptera (galls on *Solidago*, produced by them).

EDITORS OF THE AMERICAN ENTOMOLOGIST (i, 105).
Galls made by Gall Gnats.

A. S. PACKARD, JR. (Amer. Naturalist, ii, 586, 638).
A Chapter on Flies.

The contents of these papers are given in detail under the heads of the different families.

CULICIDÆ.

PACKARD (Amer. Nat., ii, 586) describes the mouth-parts (with a figure), and figures and describes the transformations of a *Culex* from Massachusetts, observed by Mr. E. Burgess.

SIMULIDÆ.

PACKARD (Amer. Nat., ii, 590) notices and figures *Simulium molestum*, from Mass., and figures the larva of a Labrador species.

CECIDOMYIDÆ.

OSTEN SACKEN (Trans. Amer. Ent. Soc., ii, 299) describes as new, *Asphondylia monacha*, from Brooklyn, N. Y., with a detailed description of the gall (growing on Solidago) and notes on the transformations of the fly itself. He also describes as new, *Cecidomyia anthophila*, with an account of its transformations and the gall it makes on the same genus of plants.

SHIMER (Trans. Amer. Ent. Soc., ii, 395) describes as new, *Cecidomyia cossæ*, bred from certain inmates of Hickory galls from Illinois.

EDITORS OF THE AMERICAN ENTOMOLOGIST (i, 105) describe the habits and gall, with figures, of *Cecidomyia strobiloides* O. S., *C. salicis brassicoides* Walsh, *C. vitis-pomum* n. sp., *C. vitis coryloides* n. sp.; vol. i, p. 247, they describe and figure the gall of *Lasioptera vitis* O. S. In vol. ii, 28, they figure the galls of *C. vitis-lituus* n. sp. (synonym of *C. viticola* O. S.), and on p. 63 the gall of *C. impatientis* O. S.

WALSH (Can. Ent., i, 79) describes a Cecidomyious gall, *Cratægi bedeguar*, on *Cratægus tomentosa*, with notices of three other Cecidomyious leaf galls.

HARRIS AND HERRICK (Harris Correspondence, 183, 207) discuss the habits of *Cecidomyia destructor*, *C. tritici* (Kirby), with notices of their parasites, and of the habits of *C. salicis* and *C. robiniaë* (p. 202).

COUPER (Can. Ent., i, 81) describes the galls on the alder of what Osten Sacken (p. 89) identifies as *Cecidomyia serratulæ* O. S.

TIPULIDÆ.

EDITORS OF THE AMERICAN ENTOMOLOGIST (i, 100) notice the fact that the larvæ of this family undergo freezing with impunity, and note the fact of rearing *Tipula trivittata* from garden soil.

PACKARD (Guide to the Study of Insects, 381) figures a larva of this family found under stones in a brook in Virginia, and on p. 382 a pupa of this family.

MYCETOPHILIDÆ.

PACKARD (Guide, 386) figures the different stages of an undescribed species of Mycetobia, and gives a view of the under side of the head of the larva, enlarged.

PULICIDÆ.

PACKARD (Guide, 388) in accordance with a suggestion of Haliday's, places this family immediately after the Mycetophilidæ, and gives in brief his reasons for so doing.

C. WRIGHT (Amer. Nat., 386) remarks on the habits of *Sarcopsylla penetrans* in Cuba.

TABANIDÆ.

PACKARD (Amer. Nat., ii, 592) figures the mouth-parts of *Tabanus lineola* Fabr.

MYDASIDÆ.

PACKARD (Guide, 395) figures the pupa of *Midas clavatus* Drury.

ASILIDÆ.

RILEY (Rpt. Nox. Ins. Missouri, 168) figures and notices the bee-killing habits of *Trypanea apivora* Fitch (apparently a synonym of *Promachus Bastardii* Macq.)

EDITORS OF THE AMERICAN ENTOMOLOGIST (i, p. 225) figure *Asilus sericeus* Say, and notice its habits; also figure the larva of an *Asilus*.

SYRPHIDÆ.

EDITORS OF THE AMERICAN ENTOMOLOGIST (i, 83) figure and describe the transformations of *Pipiza radicum* n. sp., "which preys on Root-lice under ground."

PACKARD (Amer. Nat., ii, 593) figures and describes the transformations of *Microdon globosus* Fabr. and *Merodon bardus* Say.

SCENOPINIDÆ.

PACKARD (Amer. Nat., ii, 592) figures and describes the larva and adult of *Scenopinus pallipes* Say.

MUSCIDÆ.

OSTEN SACKEN (Trans. Amer. Ent. Soc., ii, 299) describes the galls produced on *Solidago* by *Trypeta polita* Loew, and gives an account of the transformations of the fly.

RILEY (Rural New Yorker, Jan. 1, 1869) figures (in Rpt. Ins. Missouri) and describes the habits of the Seed Corn Maggot, *Anthomyia zea* n. sp., and in the same journal (Jan. 28) describes the transformations of *Meromyza Americana* Fitch, and figures the different stages in his Rpt. Nox. Ins. Missouri, p. 159.

PACKARD (Amer. Nat., ii, 641) figures and notices the habits of the larvæ and adult of a *Drosophila* injurious to stored apples, and also figures the puparium and adult of *Piophila casei*.

RILEY (Rpt. Nox. Ins. Missouri, 111) figures and describes as new, *Lydella doryphoræ*, a parasite on *Doryphora 10-lineata* Say.

H. SHIMER (Amer. Nat. iii, 550) notices the habits of the House Fly.

T. W. HARRIS (Harris Correspondence) gives a description of *Musca harpyia* Harr. Cat. and *M. familiaris* Harr., MSS.

CESTRIDÆ.

S. S. RATHVON (Amer. Ent., i, 116) records rearing *Cuterebra bucata* Fabr., which inhabited the region of the kidney of *Tamias striatus*. This fact, the Editors of the Entomologist think, does not invalidate Fitch's theory of the emasculation of the Squirrel by the bot fly.

HIPPOBOSCIDÆ.

PACKARD (Guide, 417) describes and figures as new, *Hippobosca buteonis*, from the Great Horned Owl.

COLEOPTERA.

THE past year has added but little to the literature of the subject of Coleopterous Entomology in North America. Many papers, however, have been placed in the hands of our societies for publication, and the consequent delay will cause them to be credited to the current year at the expense of that to which they really belong. Much time has been occupied in examining series of species sent by collectors from all parts of our country, and their increasing numbers and zeal is evidence of an interest developing itself from which we may reasonably expect a corresponding increase of the number of students, and a lightening of the labors of the few now devoting their attention to systematic classification and description of species.

Economic entomology has sustained a great loss in the death of Benj. D. Walsh, a careful observer, an unrelenting opponent of ignorance, and a student whose place we can only hope may be filled. The journal of which he was editor, has been at all times filled with information of great value to the agriculturist, scientific truth having been its object, while at the same time, those directly interested, have been guarded against those impositions too often attempted to be practiced on those in search of remedies against the ravages of their insect foes.

In the above cited journal may be found an account of the discovery and habits of *Hylecoetus lugubris* Say, an account of the larva of *Prionus laticollis* Drury, and series of well illustrated articles on our species of *Cassida*. The various answers to correspondents are filled with use-

ful and much new information regarding the habits of many of our species.

The *Canadian Entomologist*, published by the Entomological Society of Canada, under the editorship of Rev. C. J. S. Bethune, has greatly increased in size as well as in the value of its contributions. Local catalogues are published by Mr. Pettit and others, and serve the useful purpose of stimulating greater exertions. Careful collecting, even in a limited region, cannot fail to produce great results.

Canada appears to have taken the lead in the introduction of entomology into her schools, and it is to be hoped that the small beginnings, provoked by the offer of prizes, may grow to greater results, and that some of the pupils whose highest ambition may have been the attainment of the prize, may find in the subject itself, after it has unfolded its beauties, a greater prize than pecuniary reward.

Dr. Leconte has continued the review of the MSS. of the late Dr. Chas. Zimmerman, by the publication of "Synonymical notes and descriptions of new species," in which, besides the description of new species, may be found valuable hints regarding the classification of those already known. Such an arrangement is proposed for our species of *Platynus* and *Dicælus*. A communication from Baron Chaudoir (note, p. 248), corrects the synonymy of species, of which the types are in his cabinet. Dr. Zimmermann proposes a new genus for *Hetærius setiger* Lec., to which he gives the name *Echinodes*. The generic name *Prolyctus* is proposed for *Bothrideres exaratus* Mels.

If the literature of the subject of coleopterology in North America has not been much increased during the year, it is hoped that those students and collectors who

have themselves been *directly* benefited by having had their own cabinets increased in value by carefully named specimens, may endeavor by careful labor and study to add to our stock of knowledge as best they can, and thereby repay the *general* loss occasioned by devoting to the spread of information through private channels, that time and labor usually devoted to systematic work in our scientific journals.

Entomological Correspondence of T. W. Harris, M.D., edited by S. H. Scudder, 8vo, contains a number of brief notes and a few wood-cuts of Coleoptera, with notes by Dr. J. L. Leconte, and engravings on steel of the larva and details of *Alaus oculatus*, *Cremastochilus castanea*, *C. Hentzii* and *C. Sayi*, with details.

F. G. SANBORN (Proc. Boston Soc. Nat. Hist., xii, 81, 1868). Description and history of a new species of *Eriirhinus*, *E. juniperinus*.

G. D. SMITH (Proc. Boston Soc. Nat. Hist., xii, 327). List of Coleoptera collected by Prof. James Orton in Ecuador and Brazil. No new species are described.

EDITORS OF THE AMERICAN ENTOMOLOGIST (i, 231). Insects injurious to the grape-vine.

EDITORS OF THE AMERICAN ENTOMOLOGIST (i, 234; ii, 2). Tortoise beetles. (Insects injurious to the Sweet and Common Potato.)

C. J. S. BETHUNE (Can. Ent., i, 38). Luminous larvæ.

E. B. REED (Can. Ent., i, 69). Coleoptera taken in the neighborhood of London, Canada.

J. PETTIT (Can. Ent., i, 106; ii, 7, 17; see also p. 20). List of Coleoptera taken at Grimsby, Can.

A. S. PACKARD, Jr. (Guide to the Study of Insects). Original figures of Coleoptera either in the early or adult stages, with original notes on their habits and distribution, are only noticed in the *Record*.

J. M. JONES (Trans. of the Nova Scotia Institute of Natural Science, ii, 141). Nova Scotian Coleoptera, Part 1. This is a list of species found mostly around Halifax.

C. V. RILEY. Report on the Noxious, etc., insects of Missouri.

H. SHIMER (Amer. Naturalist, iii, 91). Insects injurious to the Potato.

C. A. YOUNG (Amer. Naturalist, iii, 615). Spectrum of the Fire-fly (*Photinus*). The rays thrown by the fire-fly affect the organs of vision more than any other, and produce hardly any thermal or actinic effect.

T. GLOVER (Patent Office Report for 1868, 78). The food and habits of beetles; with numerous figures. The second part comprises an alphabetical list of some of the principal vegetable and animal substances frequented or injured by beetles, with the names of the latter.

CARABIDÆ.

ZIMMERMANN (Trans. Amer. Ent. Soc., ii, 243) with remarks on the classifications of certain groups, describes as new, *Metabletus borealis*, from Lake Superior; *Cymindis brevipennis*, from Kansas; *Platynus rubripes*, from the "region north of the Potomac;" *Ochthedromus plagiatus*, from Maryland; *O. lacunarius*, from the Middle States; LeConte follows with synonymical notes communicated by Baron Chaudoir.

PACKARD (Guide, 432, 434) figures four unknown larvæ of this family.

HYDROPHILIDÆ.

ZIMMERMANN (Trans. Amer. Ent. Soc., ii, 249) makes some remarks on the classification of the species of *Helophorus*, and describes as new, *Hydrochus impressus*, and records the Californian *H. vagus* as occurring also in South Carolina; he describes as new, *Berosus immaculatus*, from Carolina and Illinois; *Hydrocharis grandis*, from South Carolina; *Philhydrus reflexipennis*, from New Jersey; *P. nitens*, from North Carolina; *P. semistriatus*, from Maryland; *Clyclonotum semiglobosum*, from Carolina; *Cercyon naviculare*, from the Middle States.

SILPHIDÆ.

ZIMMERMANN (Trans. Amer. Ent. Soc., ii, 250) describes as new,

Cyrtusa blandissima and *C. impubis*, from North Carolina, etc., and District of Columbia.

PACKARD (Guide, 439) figures the young and fully grown larva of *Silpha Lapponica* Herbst, from Labrador.

SCYDMÆNIDÆ.

ZIMMERMANN (Trans. Amer. Ent. Soc., ii, 251) gives a brief treatise upon the classification of the Rhyphophaga, and describes as new, *Scydmaenus Mississipicus*.

STAPHYLINIDÆ.

PACKARD (Guide, 441) figures two unknown larvæ of this family.

HISTERIDÆ.

ZIMMERMANN (Trans. Amer. Ent. Soc., ii, 252) records from Maryland, Cuba and Hayti, *Hister servus* Er., a species not before found in the U. S., and describes as new, *H. permixtus*, from Carolina, and records finding the European *H. corvinus* Germ., as occurring in South Carolina; describes as new, *Carcinops lautus*, from North Carolina, and proposes *Echinodes* as a new genus, in which he places *Heterius setiger* Lec., found April 13, in the nest of a small brown ant in South Carolina. He also discusses the classification of the species of *Pachylopus*; describes as new, *Epierus novellus*, from Carolina, and records *E. planulus* Er., from Columbia, Mexico and California, and characterizes the three groups, into which *Plegaderus* may be divided.

SCAPHIDIIDÆ.

ZIMMERMANN (Trans. Amer. Ent. Soc., ii, 251) describes as new, *Toxidium compressum*, from Louisiana, Texas, Florida and Illinois.

NITIDULARIÆ.

PACKARD (Guide, 444) figures the larva and beetle of *Ips fasciatus* Say.

COLYDIIDÆ.

ZIMMERMANN (Trans. Amer. Ent. Soc., ii, 254) describes as new, *Aulonium ferrugineum*, from Carolina, and *A. [Lasconotus] referendius*.

LATHRIDIIDÆ.

ZIMMERMANN (Trans. Amer. Ent. Soc., ii, 256) states that *Corticaria denticulata* Mann., *C. serrata* Mann., *C. elongata* Gyll., *C. pusilla*, and *Lathridius rugicollis* Mann., are common to Europe and North America; he also describes as new, *C. villosa*, and *C. subimpressa*, from North America.

CUCUJIDÆ.

ZIMMERMANN (Trans. Amer. Ent. Soc., ii, 256) states that *Silvanus bicornis* Rosenh., is found both in Europe and America, and that it may be a rare variety of *S. Surinamensis*. He describes as new, *Nausibius major*, from Carolina, and states that *Læmophlæus testaceus* (Fabr.), *L. pusillus* Schönh., and *L. alternans* Er., are common to Europe and North America.

CRYPTOPHAGIDÆ.

ZIMMERMANN (Trans. Amer. Ent. Soc., ii, 257) describes as new, *Cryptophagus croceus*, from South Carolina, *C. crinitus*, from South Carolina and Illinois, *C. fungicola*, from Carolina, and *C. nodulangu- lus*, from the Middle and Southern States. He suggests an arrange- ment of the North American species of Atomaria, and describes as new, *A. testacea*, from South Carolina; *A. ochracea*, from Maryland, and *A. ephippiata*, from the Middle States, and records *Anthrenus musæorum* and *A. adpersus* Herbst, as occurring in this country.

PACKARD (Guide, 447) describes briefly, and figures the larva of *An- therophagus ochraceus* Say.

DERMESTIDÆ.

PACKARD (Guide, 448) states that *Byturus unicolor* Say is injurious to the leaves and flowers of the raspberry, and figures an unknown larva of Dermestes, and the larva of *Attagenus pellio* Steph.

ZIMMERMANN (Trans. Amer. Ent. Soc., ii, 259) describes as new, *Stenelmis vittipennis*, from South Carolina, and *S. linearis* and *Psephenus Trentonensis*, from Trenton Falls, N. Y.

PARNIDÆ.

PACKARD (Guide, 450) figures the larva of *Psephenus Lecontei* Hald.

LUCANIDÆ.

PACKARD (Guide, 451) figures the larva and cocoon of *Lucanus dama* Fabr.

SCARABÆIDÆ.

EDITORS OF THE AMERICAN ENTOMOLOGIST (i, 111) gives a note on the habits of *Euryomia melancholica* G. and P. On pp. 186, 207 they give an account of a fungus very destructive to the larvæ of *Lachno- sterna fusca* Fröhl.

PACKARD (Guide, 452) figures an unknown larva of this family.

RILEY (Rpt. Nox. Ins. Missouri, 156) gives, with figures, notes on the habits of *Lachnosterna fusca* Fröhl.

S. LOCKWOOD (Amer. Naturalist, iii, 49) contributes a note on the destructiveness of *Cotalpa lanigera*.

BUPRESTIDÆ.

PACKARD (Guide, 458) figures the supposed larva of *Euchroma Columbica* Mann., and the larva of a species of *Chrysobothris* found under the bark of the oak.

RILEY (Rpt. Nox. Inst. Missouri, 46) gives a brief account of the habits of *Chrysobothris femorata* Fabr.

ELATERIDÆ.

BETHUNE (Can. Ent., i, 38) refers to a luminous larva described on p. 2, and which he considers as a species of *Melanactes*.

PACKARD (Guide, 460) figures a larva of this family found in the roots of the squash vine; p. 461, a larva, probably of *Melanotus*.

LAMPYRIDÆ.

PACKARD (Guide, 466) figures the larva of *Photuris Pensylvanica* DeGeer.

PTINIDÆ.

PACKARD (Guide, 470) figures the pupa of *Sitodrepa panicea* Fabr., and the larva of *Ernobius mollis* Fabr., and the larva, pupa and adult of *Lyctus opaculus* Lec.

TENEBRIONIDÆ.

PACKARD (Guide, 473) figures the larva of a species of this family, and p. 474 the larva, pupa and adult of *Boletophagus cornutus*.

PYROCHROIDÆ.

PACKARD (Guide, 477) figures the larva of a species of *Pyrochroa*.

MELOIDÆ.

RILEY (Rpt. Nox. Inst. Missouri, 96) gives an account of the habits of *Lytta vittata* Fabr., *L. cinerea* Fabr., *L. murina* Lec., *L. atrata* Fabr., and *L. marginata* Fabr.

BRUCHIDÆ.

PACKARD (Guide, 484) figures *Bruchus pisi* Linn., on p. 513.

CURCULIONIDÆ.

SANBORN (Proc. Boston Soc. Nat. Hist., xii, 81) describes the habits of *Eriirhinus juniperinus* n. sp., which inhabits a fungus *Podosoma juniperina*, in Mass.

EDITORS OF THE AMERICAN ENTOMOLOGIST (i, 221) describe (with figures) the transformations of *Ithycerus Noveboracensis* Forst.

A. M. BROWN (Amer. Ent., i, 239) thinks that *Conotrachelus nenuphar* does not produce more than one brood a year, and remarks on its ravenous appetite.

BETHUNE (Can. Ent., i, 89) notes the occurrence in Canada of *Lixus concavus* Say.

PACKARD (Guide, 487) gives an account of *Anthonomus suturalis* Lec., with notes by W. C. Fish; figures the larva, pupa and adult of *Magdalinus olyra* Herbst., and on p. 492 figures *Baridius sesostris* Lec.

RILEY (Rpt. Nox. Ins. Missouri, 50) gives an account, with figures, of *Conotrachelus nenuphar* Herbst.; on p. 93 of *Baridius trinotatus* Say; on p. 128, of *Cæliodes inæqualis* Say, with figures; and p. 131, of *Madarus vitis* Riley.

CERAMBYCIDÆ.

EDITORS OF THE AMERICAN ENTOMOLOGIST (i, 231) give (with figures) an account of the transformations and habits of *Prionus latcollis* Drury.

RILEY (Rpt. Nox. Ins. Missouri, 42) gives an account, with figures, of the economy of *Saperda bivittata* Say, and on p. 124, of *Orthosoma cylindricum* (Fabr.)?, with figures.

PACKARD (Guide, 496) figures the larva, pupa and adult of *Asemum mæstum* Hald., and on p. 497 the larva and pupa of *Clytus pictus* (Drury); on p. 498 *Oncideres cingulatus* Say; on p. 499 the larva of *Compsidea tridentata* (Oliv.), and describes, with a figure, the habits of *Psenocerus supernotatus* Say.

CHRYSOMELIDÆ.

W. JULICH (Amer. Ent., i, 110) contributes a note on the habits of *Doryphora juncta* Germar.

EDITORS OF THE AMERICAN ENTOMOLOGIST (i, 114) give an account of the habits of the Asparagus beetle, *Crioceris asparagi* Linn. On p. 158 they give an account of the habits of *Haltica striolata* Ill.

EDITORS OF THE AMERICAN ENTOMOLOGIST (i, 234) describe the habits of *Blepharida rhois* Forster (also ii, 2), the larva of *Cassida* (*Physonota*) *quinque-punctata* n. sp., and figure and describe the different stages of *Cassida bivittata* Say, *C. aurichalcea* Fabr., *C. pallida* Herbst., *C. guttata* Oliv., *C. nigripes* Oliv. In vol. ii, p. 2, they figure *Deloyola clavata* Oliv., and state that *Physonota unipunctata* Say feeds on the sunflower (*Helianthus*).

PACKARD (Guide, 504) figures the larva and adult of *Chelymorpha cribraria* (Fabr.), with brief descriptions of its habits; p. 505, the habits and transformations of *Galeruca marginella* Kirby, from North-

ern Maine, and figures the larva and pupa of *Diabrotica vittata* (Fabr.). On p. 507 figures *Graptodera chalybea* (Ill.), with a description of its larva, and notes on its habits from the observations of M. C. Reed. On p. 508 he figures the larva of *Labidomera trimaculata* (Fabr.), and on the next page *Calligrapha Philadelphica* (Linn.); on p. 510 he figures the larva and case of *Chlamys plicata* Oliv.

RILEY (Rpt. Nox. Ins. Missouri, 99) gives an account of the habits of *Lema trilineata* (Oliv.), *Doryphora 10-lineata* Say, *D. juncta* Germar; p. 132, *Fidia viticida* Walsh.

COCCINELLIDÆ.

PACKARD (Guide, 511) gives an account of the habits of *Coccinella bipunctata* Linn.

HEMIPTERA.

BUT few publications relating to our Hemiptera have appeared during the past year. Foremost among these, however, is Dr. Packard's "Guide to the Study of Insects;" the ninth number of which relates to the Hemiptera. Beginning with the feeble plant-lice he proceeds through the various groups of Homoptera and Heteroptera, giving a clear expression of the principal characters of each, with illustrations of one or more of the typical species; placing at the disposal of the student, in a compact form, a huge mass of facts, only otherwise attainable by protracted and laborious research through a vast number of usually inaccessible works.

In the *Ofversigt af Kongl. Vetenskaps-Akademiens Forhandlingar*, Stockholm, 1869, No. 3, Dr. Staal has continued the classification of the Homopterous group, *Membracidæ*, and described several new genera and species from North America.

About the close of the year 1868, Mr. Francis Walker published his third part of the catalogue of specimens of Hemiptera Heteroptera, in the collection of the British Museum, which appeared too late for notice in our report for 1868. As parts one and two of that work have not yet reached us, we are unable to state whether, or not, they include species from this country. Part three extends to the end of the Pentatomoids, and embraces all the names of species known to the author, as well as descriptions of the supposed new species in the collection of the British Museum.

Only recently I have received the Transactions of the New York State Agricultural Society, published in 1868.

It includes remarks by Dr. Asa Fitch upon the habits of a few species of Homoptera, affecting raspberry bushes and dahlias.

THE ABBÉ PROVANCHER (*Le Naturaliste Canadien*, for August) has described a new species of Canadian *Nabis*, *N. Canadensis* Prov.

C. V. RILEY (First Annual Report on the Noxious, Beneficial and other Insects of the State of Missouri) includes notices of the habits of several species observed in the Western States.

MESSRS. WALSH AND RILEY record the habits of a few species in the *American Entomologist*, vols. 1 and 2.

PACKARD (*Guide*) notices *Aphis avenæ* Fabr., *A. mali* Fabr., *A. malifoliæ* Fitch, *A. cerasi* Fabr., *A. persicæ* Sulz., *A. brassicæ* Linn., *Lachnus caryæ* Harris, *Eriosoma lanigera* Hausm., *Hamamelistes cornu* Shimer, *Thelaxes ulmicola* Walsh, *Pemphigus formicetorum* Walsh, *P. vagabundus* Walsh, *P. rhois* Walsh, *P. ulmicola* Fitch, *Eriosoma pyri* Fitch, *Aspidiotus Gloverii* Pack. n. sp., *Lecanium hesperidum* Linn., *L. acericola* Walsh, *L. Macluræ* Walsh, *Aspidiotus conchiformis* Gmelin, *A. Harrisii* Walsh, *Psylla pyri* Harris, not of Europe, *Livia vernalis* Fitch, *Erythro-neura vitis* Harris, *Jassus irroratus* Say, *Helochara communis* Fitch, *Diedrocephala mollipes* Say, *D. quadrivittata* Say, *Tettigonia bifida* Say, *Clastoptera proteus* Fitch, *Aphrophora quadrinotata* Say, *Anotia Bonnetii* Kirby, *Otiocerus Coquebertii* Kirby, *Delphax arvensis* Fitch, *Cicada rimosa* Say, *C. septendecim* Linn., *C. pruinosa* Say, *C. Cassinii* Fisher, *Notonecta undulata* Say, *N. irrorata* Say, MSS., *Corixa interrupta* Say, *Belostoma Haldemanum* Leidy, *B. grisea* Say, *Ranatra fusca* Beauv. This is hardly *fusca* Beauv., but is certainly *R. nigra* H. Schf., *Galgulus oculatus* Fabr., *Gerris paludum* Fabr. hardly, but the true *G. remigis* Say, *G. rufoscutellata* Latr., *Emesa brevipennis* Say, *E. longipes* DeGeer, *Pirates picipes* H. Sch., *P. biguttatus* Say, *Reduvius personatus* Linn., *Evagoras viridis* Uhler (= *Diplodus luridus* Staal) *Conorhinus sanguisuga* Lec., *Lygæus turcicus* Fabr., *Micropus leucopterus* Say, *Anthocoris insidiosus* Say, *Oriterus tristis* DeGeer, *Metapodius nasulus* Say, *Euschistus tristigma* Say, *Pentatoma ligata* Harris, *Arma spinosa* Dallas, *Stiretrus fimbriatus* Say, *Corimelæna histeroides* Say (= *C. nitiduloides* Wolff.), *C. pulicaria* Germ., *Aulacostethus marmoratus* Say, *Scutellera viridipunctata* Say (= *Calyptocadus chrysorrhæus* Fabr.), *Phlæothrips mali* Fitch., *P. caryæ* Fitch, *Capsus quadrivittatus* Say (= *Lygus lineatus* Fabr.), *Lygus lineolaris* Beauv., *Cimex (Acanthia) lectularia* Linn., *Miris dorsalis* Say, *Phymata erosa* Fabr., *Tingis hyalina* Fabr., *Aradus crenatus* Say, *Pediculus capitis humanus* DeGeer, *Pthirus pubis* Linn., *Trichodectes canis* DeGeer, *Gyropus porcelli* Schrank. He also states (p. 536) that the ovipositor of *Cicada*, as observed in the

pupa, is constructed on the same type as he has described in *Bombus* and *Æschna*, consisting of three pairs of blades.

STAAL, l. c., refers to their appropriate groups, which he characterizes, *Polyglypta costata* Burm., *P. dorsalis* Burm., *Entylia sinuata* Fabr., *Ceresa diceros* Say, *C. bubalus* Fabr., *C. brevis* Walk., *C. taurina* Walk., *C. constans* Walk., *C. basalis* Walk., *C. albidosparsa* Walk., *C. ustulata* Fairm., *C. axillaris* Germ., *C. mallina* Germ., *C. vitulus* Fabr., *C. brunneicornis* Germ., *C. cavicornis* Staal, *C. testacea* Fairm., *C. patruelis* Staal, *C. femorata* Fairm., *Stictocephala inermis* Staal, *S. festina* Say, *S. rotundata* Say, *S. lutea* Walk., *S. Franciscana* Staal., *Phacusa pallescens* Staal, *P. nigripes* Staal, *Thelia Uhleri* Staal, *Telamona Mexicana* Staal, *Heliria cristata* Fairm. (= *Telamona acclivata* Emmons,) *H. scalaris* Fairm. (= *Telamona fagi* Emmons,) *Archasia galeata* Fabr. (= *Smilea auriculata* Fitch) *A. Belfragei* Staal, *Hyphinoë camelus* Gray, *Platycotis sagittata* Germ. (= *Membracis belligera* Say) *P. acutangula* Staal, *Umbonia Orozimbo* Fairm., *Ochropepla pallens* Staal, *Enchenopa binotata* Say, *Cladonota latrifrons* Staal, *Hypsoprora trituberculata* Staal, *Campylocentrus obscuripennis* Staal, *Boocerus gilvipes* Staal, *Platycentrus acuticornis* Staal, *P. obtusicornis* Staal, *Brachybelus cruralis* Staal, *Nessorhinus gibberulus* Staal, from Porto Rico; *Goniolomus tricorniger* Staal, *Microcentrus caryæ* Staal (= *Uroxiphus caryæ* Fitch), *Æthalion gratus*, Walk., *Æ. nervosopunctatus* Sigt. All from North America, or the West Indies.

FRANCIS WALKER (Cat. Hem. Brit., Mus.) describes the following: *Edessa lineosa* W., *E. euchroma* W., *E. trifurca* W., *Aceratodes sigillatus* W., *A. cordifer* W., *A. privatus* W., *Symphylus politus* W., *Bodetria scutellaris* W., *Æthus scitus* W., *Chlorocoris rubescens* W., *C. rubropictus* W., *Bryelica ramosa* W., *Euschistus biformis* W., *E. comptus* W., *Mormidea tetra* W., *M. melanocatha* W., and mentions by the name and citation, *Peromatus robustus* Haglund, *Edessa obtusa* W., *E. reticulata* W., *E. nigrispina* W. (= *E. bos* Staal,) *E. taurina* Staal, *E. nigricornis* Staal, *E. arietina* Staal, *E. olivacea* Staal, *E. hædina* Staal, *E. præcellens* Staal, *E. lineigera* Staal, *E. patricia* Staal, *E. jurgiosa* Staal, *E. junix* Staal, *E. puncticornis* Staal, *E. vinula* Staal, *E. lepida* Staal, *E. rixosa* Staal, *E. pudica* Staal, *E. pudibunda* Staal, *Olbia caprina* Staal, *Edessa acantharis* Linn., *Aceratodes cornutus* Burm., *Aceratodes ictericus* Linn.; he cites Linné for this species, but that author does not describe an *Edessa*; on the contrary the true Linnean insect must be a *Euschistus*, to which genus Dr. Herrich-Schäffer has already referred it. *Aceratodes cruentus* Fabr., *A. inconspicuus* H. Schf., *A. meditabundus* H. Schf., *Brachystethus rubromaculatus* Dallas, *Pachycoris chrysorrhæus* Fabr. (= *Scutellera viridipunctata* Say), *Macraulax tristis* Uhler, *Diolcus cordiger* Beauv., *Diolcus nebulosus* Beauv., *Diolcus irroratus* Germ., *Diolcus flavescens* Hope, *Corimelæna unicolor* Germ., *C. nitidu-*

loides Wolff (= *Thyreocoris histeroides* Say), *C. carulescens* Staal, *C. guttiger* Staal, *C. quadrisignata* Staal, *Æthus femoralis* H. Schf., *Loxa flavicollis* Drury, *Mormidea lugens* Fabr., *Pentatoma semivittata* H. Schf. This species belongs to the genus *Trichopepla* Staal, and is the same as *T. pilipes* Dallas, *Rhaphigaster sarpinus* Dallas, the name must be *Nezara hilaris* Say, and it is not the *Cimex Pensylvanicus* DeGeer. The true *Pensylvanicus* DeGeer is the same as *Pentatoma abrupta* Say, of which I possess a specimen from Panama, and another beaten by myself from an oak tree in New Jersey. *Pentatoma ligata* Say, *Ptilarmus fasciatus* Hagl., *Pharypia pulchella* Staal.

ASA FITCH (Twelfth Report on the Insects of New York State) notes, at considerable length, the habits of *Ceresa bubalus* Fabr., *Gypona flavilineata* Fitch, and *G. octolineata* Say.

C. V. RILEY (Rpt. Nox. Ins. Missouri) records notices of the habits of *Aspidiotus Harrisii* Walsh, *Aspidiotus conchiformis* Gmelin, *Cicada septendecim* Linn., *C. Cassinii* Fisher, *Arma spinosa* Dallas, *Euschistus punctipes* Say, *Oriterus tristis* DeGeer, *Stiretrus fimbriatus* Say, *Harpactor cinctus* Fabr., *Reduvius raptatorius* Say (= *Sinea multispinosa* DeGeer), *Eriosoma pyri* Fitch, *Eriosoma ulmi* Riley.

WALSH AND RILEY (American Entomologist) have furnished observations upon the following:—*Eriosoma pyri* Fitch, *Pediculus cervicalis* Linn., *Pthirus pubis* Linn., *Pulex irritans* Linn., *Pulex penetrans* Linn., *Reduvius personatus* Linn., *Acanthia lectularia* Linn., *Pirates biguttatus* Say, *P. picipes* H. Schf., *Conorhinus sanguisuga* Lec., *Pri-notus novenarius* Say, *Micropus leucopterus* Say, *Aphis mali* Fitch. In No 12, page 249, they figure a *Belostoma*, calling it *B. grandis* Linn. It appears to be *Benacus Haldemanum* Leidy. The first named is a colossal species belonging to South America.

HARRIS (Entomological Correspondence) includes remarks upon *Cicada septendecim* (p. 186), *Cicada canicularis* Harr., *Phytocoris (Lygus) linearis* Beauv., and p. 334 *Membracis ampelopsidis* Harr., *Tettigonia (Jassus) rosæ* Harr., *Aphis caryæ* Harr. and *A. salicti* Harr.

Hemiptera were not very abundant in the vicinity of Baltimore during the past summer, but on the marshes near the coast of New Jersey they appeared in myriads. The species were few, but a new form of *Delphacidæ* was the most numerous. Fresh specimens were of a bright apple-green color, but the old and beaten ones appeared dirty yellowish. *Gypona octolineata* Say, greatly variable in colors, and a *Nysius* allied to *N. thymi* Wolff, were collected in large numbers. The capture, by beating a young oak tree, of a specimen of *Pentatoma abrupta* Say, and the kind notes formerly sent to me by Dr. Staal, enable me to record the rediscovery of the true *Cimex Pensylvanicus* DeGeer. The name must now be *Rhaphigaster Pensylvanicus*. I formerly received a poor specimen of this species from Panama,

and more recently one specimen from New York City, sent to me by Mr. Akhurst. It differs from *Nezara hilaris* Say in being bluntly oval, with rounded humeral angles, while in *hilaris* the humeri are triangular. Atlantic County, N. J., seems to be the neutral ground upon which the insects of the North and South find a common dwelling-place. The following Cicadas belong to that region: *Cicada auletes* Germ., *C. pruinosa* Say, *C. canicularis* Harris, and *C. variegata* Fabr.

ORTHOPTERA.

A. S. PACKARD, Jr. (Guide Ins., 556–577), presents a general account of the external and internal structure of Orthoptera, dwelling at some length on the genital armature and calling attention to the fossil species, to the sounds produced by the different families, and to the transformations of these insects.

S. H. SCUDDER (Proc. Boston Soc. Nat. Hist., xii, 228–235; Ent. Notes, ii, 7–14) gives an historical account of the classification of the families of Orthoptera, taken from the writings of Linné, Geoffroy, Fabricius, DeGeer, Latreille, Marcel de Serres, Olivier, Lamarck, McLeay, Duméril, Leach, Newman, Burmeister, Westwood, Blanchard, Fischer de Waldheim, Fieber, H. Fischer and Gerstaecker, and discusses the relationship of the families from various structural grounds; he places them in the following descending series: Gryllides, Locustariæ, Acrydii, Phasmida, Mantides, Blattariæ, Forficulariæ, — the same as that adopted in the RECORD for 1868.

S. H. SCUDDER (Proc. Boston Soc. Nat. Hist., xii, 330–345; Ent. Notes, ii, 15–30) publishes descriptions of Orthoptera, collected by Professor Orton, on either side of the Andes of equatorial South America. Forty species are enumerated, of which thirty are new; three new genera are characterized among the Locustariæ.

S. H. SCUDDER (Trans. Amer. Ent. Soc., ii, 305–307) describes, from the collection of the Entomological Society, six new American species, belonging to the families Locustariæ, Acrydii and Blattariæ.

GRYLLIDES.

EDITORS AMERICAN ENTOMOLOGIST (Amer. Ent., i, 147, 247) describe the eggs of *Æcanthus niveus* and the mode in which they are inserted into twigs.

A. S. PACKARD, Jr. (Guide Ins., 562-564), presents a general account of the structure of this family and of the organs of stridulation, and gives short characters or mentions the habits of most of the common species of northern United States; two wood-cuts of *Æcanthus niveus* are added, and a fossil species, *Archeogryllus priscus*, is referred to.

C. V. RILEY (First Rpt. Nox. Ins. Missouri, 138-139) gives an account, with figures, of *Æcanthus niveus*, and of the injury done to canes by the punctures made in ovipositing.

S. H. SCUDDER (Mem. Peab. Acad. Sc., i, No. 1, Revision of the large, stylated, fossorial crickets, pp. 28, pl. 1) separates *Gryllotalpa* into two genera, *Gryllotalpa* sens. strict., and *Scapteriscus*, the former containing the species with four, the latter with two dactyls on the fore tibiæ. The species of each genus are described in detail and extended measurements of many individuals given; illustrations of the venation of the upper wings of each species, and often of each sex, and of the anterior legs are added in a plate, together with a full length portrait of *Gryllotalpa australis*. The memoir is preceded by a bibliographical notice. The following species are characterized:—*Scapteriscus oxydactylus* (Perty), *S. tenius* n. sp., from Brazil, *S. Mexicanus* (Burm.), *S. didactylus* (Latr.), *S. vicinus* n. sp., from South and Central America, *S. Agassizii* n. sp., from Switzerland, — probably introduced from Central America, *S. variegatus* (Burm.), and *S. abbreviatus* n. sp., from Pernambuco; *Gryllotalpa australis* Erichs., *G. nitidula* Serv., *G. cophta* DeHaan, *G. vulgaris* Latr., *G. hirsuta* Burm., *G. Africana* Pal. de Beauv., *G. longipennis* DeHaan, *G. fossor* n. sp., from Western and Southern Africa, *G. oryctes* n. sp., from China, *G. cultriger* Uhl., *G. Chiliensis* Sauss., *G. minuta* Burm., *G. borealis* Burm., *G. Columbia* Scudd. (*G. longipennis* Scudd.), and *G. hexadactyla* Perty.

S. H. SCUDDER (Proc. Boston Soc. Nat. Hist., xii, 330-331; Ent. Notes, ii, 15-16) describes *Nemobius Ortonii*, *Platydictylus fasciatus* and *Trigonidium gracile* — new species from the Napo River, South America.

LOCUSTARIÆ.

EDITORS AMERICAN ENTOMOLOGIST (Amer. Ent., i, 100) describe briefly the eggs of *Platyphyllum concavum*, found on vine canes.

EDITORS AMERICAN ENTOMOLOGIST (Amer. Ent., i, 166) give a brief description and figures of the eggs of *Phylloptera oblongifolia*.

EDITORS AMERICAN ENTOMOLOGIST (Amer. Ent., i, 224) describe the eggs of some species of *Orchelimum* or *Xiphidium*.

A. S. PACKARD, Jr. (Guide Ins., 564-567), characterizes the family, and refers briefly to most of the common New England species, adding a figure of *Cyrtophyllum concavum*.

S. H. SCUDDER (Proc. Boston Soc. Nat. Hist., xii, 331-336; Ent. Notes, ii, 16-21) describes the following new species: *Steirodon quad-*

ratum from Guayaquil, *Acanthodis* (?) *antennatus* from Napo River, *Meroncidium conspersum* from Napo or Marañon, *Copiophora gracilis*, *Conocephalus brevicauda* and *C. tenuicauda* from the same; also *Panoploscelis* nov. gen., allied to *Listroscelis*, based on *P. armata* n. sp., from Napo or Marañon, *Disceratus* nov. gen., represented by *D. nubiger* n. sp., from the slope of Antisana, ten thousand feet above the sea, and *Acanthacara* nov. gen., with one species, *A. acuta* n. sp., taken between Quito and Napo.

S. H. SCUDDER (Proc. Boston Soc. Nat. Hist., xii, 408-409; Ent. Notes, ii, 47-48) presents a notice of a new cave insect from New Zealand, *Hadenæcus Edwardsii*. He also reviews the synonymy of the species of *Hadenæcus* previously described, viz.: *H. palpatus* (Sulz.) from European caves and *H. cavernarum* (Sauss.) from North American caves.

S. H. SCUDDER (Trans. Amer. Ent. Soc., ii, 305) describes *Xiphidium attenuatum* n. sp., from Illinois.

ACRYDII.

W. N. BYERS (Amer. Ent., i, 94-95) writes an account of the habits and devastations of the "Colorado Grasshopper," *Caloptenus spretus*, intended to prove that its native breeding place is upon the hot plains and table-lands from four thousand to six thousand feet above the sea.

V. DEVINNY (Amer. Ent., i, 95) writes a similar letter from Colorado, distinguishing between the "spring" and "fall" grasshoppers, the former of which hatch in the place and fly away to lay their eggs; while the latter are brought in swarms by the wind and deposit the eggs from which the next spring brood emerge.

D. A. A. NICHOLS (Amer. Ent., i, 96) states that grasshoppers were unusually destructive in Western New York, in 1868.

A. S. PACKARD, Jr. (Guide Ins., 567-572), gives a general account of the family, describes briefly most of our common northern species, and mentions more at length the habits of *Chlæaltis conspersa* and *Caloptenus spretus*; illustrations are given of *Caloptenus femur-rubrum*, *C. spretus* and *Ædipoda xanthoptera*.

S. H. SCUDDER (Proc. Boston Soc. Nat. Hist., xii, 336-340; Ent. Notes, ii, 21-25) gives the characters of the following new species from South America: *Proscopia bulbosa* and *P. sajax* from Napo or Marañon, *Cephalocæma acuminata* from between Quito and Napo, *Xiphicera octomaculata* from Napo or Marañon, *Lophacris Humboldtii* from the same, *Tropidacris rex* from Guayaquil, *Acridium occidentale* and *A. labratum* from Napo or Marañon, *Chrysochraon* (?) *abbreviatum* from between Quito and Napo, and *Ædipoda bivenosa* from Ecuador. He also records *Anomorpha caiman* Sauss., taken between Quito and Napo.

S. H. SCUDDER (Proc. Boston Soc. Nat. Hist., xii, 345-355; Ent. Notes, ii, 31-41) in a study of the gigantic, lobe-crested grasshoppers of South and Central America, has divided that section of the old genus *Acridium* which included the species of extraordinary size with crested pronotum, into three divisions, represented respectively by the familiar species, *A. dux* (Drury), *A. carinatum* (Stoll) and *A. Olfersii* Burm.; these divisions he considers to be of generic value and describes them as such under the names of *Tropidacris*, *Titanacris* and *Lophacris*. All the species embraced in these genera are redescribed, *Tropidacris*, including *T. dux* (Drury), *T. rex* Scudd., *T. Latreillei* (Perty), *T. Fabricii* Scudd. [= *Gryllus dux* Fabr., non Drury] and *T. cristata* (Linn.); *Titanacris* embracing *T. carinata* (Stoll) and *T. albipes* (DeGeer), and *Lophacris*, *L. Olfersii* (Burm.), *L. Velasquezii* (Nieto), and *L. Humboldtii* Scudd. The geographical distribution of these species is carefully examined, and the author concludes that they are not spread promiscuously over the whole of northern South America, as previous authors have apparently assumed, but are nearly all limited to separate zoological provinces. *Tropidacris cristata* is found over the whole Brazilian coast and in the interior; *T. Fabricii*, on the same coast between Rio and Para, *T. Latreillei* on the Amazons, *T. dux* about the Isthmus of Darien, and *T. rex* upon the west coast of equatorial America; *Lophacris Olfersii* occurs on the Brazilian coast, *L. Velasquezii* in Mexico and *L. Humboldtii* in Ecuador; the precise locality of *Titanacris carinata* is unknown, and *T. albipes* is found on the Brazilian coast.

S. H. SCUDDER (Trans. Amer. Ent. Soc., ii, 305-306) describes the following new species: *Opomala aptera* from Pennsylvania, *Gomphoceris simplex* from Delaware, *Ædipoda carinata* from Iowa, and *Tettix femorata* from Maryland.

PHASMIDÆ.

E. BURGESS (Proc. Boston Soc. Nat. Hist., xii, 355-356) collected families of *Anisomorpha buprestoides* Gray, consisting of fully grown males and females *in coitu* and young of all sizes, under logs and fragments of coral, at Key West, Fla., in January and February.

A. S. PACKARD, JR. (Guide Ins., 572-574), gives a short account of the family and of a few well known species; a wood-cut of *Diapheromea femorata* is given.

S. H. SCUDDER (Proc. Boston Soc. Nat. Hist., xii, 340-341; Ent. Notes, ii, 25-26) mentions a species of *Bacteria*, brought from Napo or Marañon, which may be referred to *B. molita* Westw., or *B. gracilis* Burm. He also describes *Acanthoderus immanis* n. sp., allied to *A. Tisiphone* Westw., from Napo or Marañon; records *Phasma putidum* Bates from the same locality, and briefly calls attention to some char-

acteristics in which a specimen of *Phasma*, taken in Ecuador, differs from *P. Menius* Westw.

MANTIDES.

EDITORS AMERICAN ENTOMOLOGIST (Amer. Ent., i, 184) give a short popular account of *Mantis Carolina*, with wood-cuts of the eggs and perfect insects.

EDITORS AMERICAN ENTOMOLOGIST (Amer. Ent., ii, 63) state that *Mantis Carolina* ranges as far north as Lat. 40°.

A. S. PACKARD, Jr. (Guide Ins., 574-575), gives brief statements of the structural peculiarities of this family, and of the habits of *Mantis Carolina*, figures of which are given.

C. V. RILEY (First Rpt. Nox. Ins. Missouri, 169-171) gives a description of *Mantis Carolina* and its rapacious habits, with wood-cuts of the imago and egg-masses.

S. H. SCUDDER (Proc. Boston Soc. Nat. Hist., xii, 341-342; Ent. Notes, ii, 26-27) describes *Stagmatoptera binotata* n. sp., from Napo or Marañon, South America.

BLATTARIÆ.

EDITORS AMERICAN ENTOMOLOGIST (Amer. Ent., i, 166) describes the habits and egg-cases of *Platamodes unicolor*, and *Ectobia Germanica* and state that the latter has been taken at Cairo, Ill.

A. S. PACKARD, Jr. (Guide Ins., 575-577), gives an account of this family with short descriptions of the common New England species; figures of *Ectobia Germanica* and *Mylacris anthracophila*, the latter from the coal measures of Illinois, are added.

S. H. SCUDDER (Proc. Boston Soc. Nat. Hist., xii, 342-344; Ent. Notes, ii, 27-29) describes *Phyllodromia pallipes*, *Blabera femorata*, and *B. armigera* as new species from Napo and Marañon, South America; records also *Ischnoptera melana* Walk. (?), *Periplaneta Americana* Burm., *P. Australasiæ* Burm., and *Panchlora exoleta* Klug, from the same locality, *Blabera Cubensis* Sauss., from Guayaquil and *Zetobora rubis* Walk., from Ecuador.

S. H. SCUDDER (Trans. Amer. Ent. Soc., ii, 307) describes *Ischnoptera hyalina* n. sp., from Delaware.

FORFICULARIÆ.

A. S. PACKARD, Jr. (Guide Ins., 577), gives a brief account of this family and of the two New England species.

S. H. SCUDDER (Proc. Boston Soc. Nat. Hist., xii, 344-345; Ent. Notes, ii, 29-30) describes *Chelidura robusta*, *Psolidophora nigripennis*, and *Labia bilineata* as new species taken by Professor Orton between Quito and Napo, South America.

NEUROPTERA.

DE SELYS Lonchamps (Comptes Rendus de l'Académie de Belgique, p. 66) describes eight new species of dragon-flies, from Mexico.

C. V. RILEY (First Annual Report on the Noxious, etc., Insects of Missouri) briefly notices the habits of a few species, such as *Chrysopa* sp.? p. 57, dragon-flies, p. 26, etc.

RILEY AND WALSH (American Entomologist, vols. 1 and 2) give occasional remarks upon the habits of the following species:—*Æschna constricta* Say, *Corydalis cornutus* Linn., and *Chrysopa* sp.?

By far the most valuable contribution of the period is Dr. Packard's "Guide to the Study of Insects," Part X. In it he gives comparisons of the structure of the Neuroptera with the other orders, and includes the most interesting fossil species. The development of the dragon-flies is worked out in considerable detail, and forms one of the most valuable contributions to our knowledge of the young stages of these insects.

The following species are used to depict the groups:—*Termopsis angusticollis* Linn., *Termes flavipes* Kollar, *Clothilla picea* Motsch., *Atropos divinatorius* Fabr. *Psocus venosus* Burm., *P. salicis* Fitch, *Pteronarcys regalis* Newm., *P. proteus* Newm., *Perla abnormis* Newm., *Isopteryx cydippe* Newm., *Capnia pygmæa* Burm., *Teniopteryx frigida* Hagen, *Nemoura albidipennis* Walk., *Leuctra tenuis* Pict, *Miamia Bronsoni* Scudder, fossil, *M. Danæ* Scudd., fossil, *Crestotes lapidea* Scudd., fossil, *Palingenia bilineata* Say, *Ephemera decora* Walk., *Platphemera antiqua* Scudd., fossil, *Haplophlebium Barnesii* Scudd., fossil, *Baëtis interpunctata* Say, *Potamanthus cupidus* Say, *P. marginatus* Zett., *Cloë pygmæa* Hagen, *Cænis hilaris* Say, *Lachlania abnormis* Hagen, *Hemeristia occidentalis* Dana, fossil, *Calopteryx apicalis* Burm., *Lestes eurina* Say, *Agrion civile* Hagen, *Gomphus fraternus* Say, *Anax junius* Drury, *Æschna heros* Fabr., *Cordulia tenebrosa* Say, *Libellula*

trimaculata DeG., *L. quadrimaculata* Linn., *Diplax rubicundula* Say, *D. Berenice* Drury, *D. Elisa* Hagen, *Nannophya bella* Uhler, *Sialis infumata* Newm., *S. Americana* Ramb., *Chauliodes pectinicornis* Linn., *C. serricornis* Say, *Corydalis cornuta* Linn., *Aleuronia Westwoodii* Fitch, *Coniopteryx vicina* Hagen, *Hemerobius occidentalis* Fitch, *Polystæchotes punctatus* Fabr., *Mantispa brunnea* Say, *Chrysopa oculata* Say, *Myrmeleon abdominalis* Say, *Ascalaphus hyalinus* Latr., *Panorpa rufescens* Ramb., *Bittacus pilicornis* Westw., *Boreus nivoriundus* Fitch, *B. brumalis* Fitch, *Merope tuber* Newm., *Neuronia semifasciata* Say, *Limnophilus perpusillus* Walk., *L. rhombicus* Linn., *L. subpunctulatus* Zett., *Sericostoma Americanum* Walk., *Helicopsyche glabra* Hagen, *H. arenifera* Lea., *Leptocerus niger* Linn., *Setodes candida* Walk., *Hydropsyche scalaris* Hagen, *Rhyacophila fuscula* Walk., *Megathentomum pustulatum* Scudder, fossil, and considers the Thysanura as neuropterous, dividing them into three families, the Lepismatidæ, Campodeæ and Poduridæ.

HARRIS (Entomological Correspondence, p. 194) contains an account of the moulting of Epheméridæ. The following Neuroptera are also described or noticed, page 326, *Libellula* (*Diplax*) *rubicundula* Say, *Æschna heros* Fabr., p. 328, *Psocus luridus* Harris, *P. gregarius* Harr., = *venosus* Burm., p. 330, *P. frontalis* Harr. = *striatus* Walk., p. 331, *P. nubilus* Harr. = *lugens* Hagen, *P. quadrifasciatus* Harr. = *pusillus* Hagen; p. 332, *P. infuscatus* Harr. = *sparsus* Hagen, *P. gracilis* Harr. = *signatus* Hagen; p. 333, *Neuronia pardalis?* Walker, *Phryganea argus* Harr.

C. J. S. BETHUNE (Can. Ent., i, 81) contributes a note on the Snow flies, *Capnia pygmæa* Burm.

A. S. PACKARD, Jr. (Amer. Nat., iii, 160), in an article entitled "Case Worms," figures the case of *Helicopsyche glabra* Hagen, with notes on these shell-like cases by Dr. Hagen. He also figures the case and larva of *Limnophilus subpunctulatus* Zett., from Labrador, and the case and head and thorax of the larva of a species of *Leptocerus*.

F. G. SANBORN (Proc. Boston Soc. Nat. Hist., xii, 409) records the capture of *Boreus brumalis* Fitch at Medford, Mass., by Dr. E. P. Colby early in April.

W. C. FISH (Amer. Nat., ii, 616) records the supposed injury done to a basket of wicker work by *Lepisma saccharina* L., with a note on the injurious habits of this insect by the Editors.

The past summer furnished as usual vast numbers of the ordinary dragon-flies; but a species of colossal size, *Hagenius brevistylus* Selys, for the first time rewarded my labors near Baltimore. It has the rapid, dashing flight of the large *Æschnina* and is exceedingly wary. *Nannophya bella* Uhler, occurred in vast numbers and endless variety adjoining a brackish-water swamp, about sixteen miles east of this

city. *Cordulina* were more scarce than usual, while *Æschnina*, particularly *Æ. heros* Fabr., were unusually abundant.

Diplax elisa Hagen has appeared here during the past two summers, and is now fully established in our brick-ponds. No specimens had ever been previously seen in this vicinity, and by what route it reached us is uncertain, as I have not been able to find it elsewhere within a radius of thirty miles around the city, nor indeed in the State, at a nearer distance than the eastern shore of Chesapeake Bay. *Chrysopa euryptera* Burm., was immensely abundant and *Panorpa rufescens* Ramb. was also more than usually frequent, near the southeastern suburbs of this city.

ARACHNIDA.

T. W. HARRIS. Entomological Correspondence.

A. S. PACKARD, Jr. (Amer. Nat., iii, 364). A Chapter on Mites.

A. S. PACKARD, Jr. Guide to the Study of Insects.

A. S. PACKARD, Jr. (Rpt. of the Peabody Academy). List of the Hymenopterous and Lepidopterous Insects collected by the Smithsonian Expedition to South America, under Prof. James Orton.

H. SHIMER (Trans. Amer. Ent. Soc., ii, 319). Descriptions of two Acarians bred from the White Maple (*Acer dasycarpum*).

W. COUPER (Can. Ent., i, 57). Spider's Nests.

C. G. GIEBEL (Zeitschrift für die gesammten Naturwissenschaften, Berlin, 1869, p. 248), on some spiders from Illinois.

ARANEINA.

X GIEBEL (Zeitsch. Naturwissenschaften, 248) describes as new from Illinois, *Attus Brendeli*, *Epeira annulipes*, *Agnelopsis albipilis* nov. gen. et. sp., *Dolomedes striatus*, *D. convexus*, and redescribes, from Illinois, *Attus auridens* Bosc, and *Epeira apoclisia* Walkenaer.

HARRIS (Harris Corr., 137) describes and figures a species of *Dolomedes*, with an account of its habits.

COUPER (Can. Ent., i, 57) describes the nests of three species of Theridion.

V. CLEMENTI (Can. Ent., i, 62) notes the occurrence of *Gordius* in a spider; and on p. 69, Dr. H. Hagen enumerates the instances observed in Europe.

ACARINA.

G. W. PECK (Amer. Nat., iii, 50) notices the habits of the *Lycosa* in carrying its young on its back.

PACKARD (Rpt. Peab. Acad., 65) describes as new *Ixodes Napoensis*, from Napo River, and adds descriptions of the following new

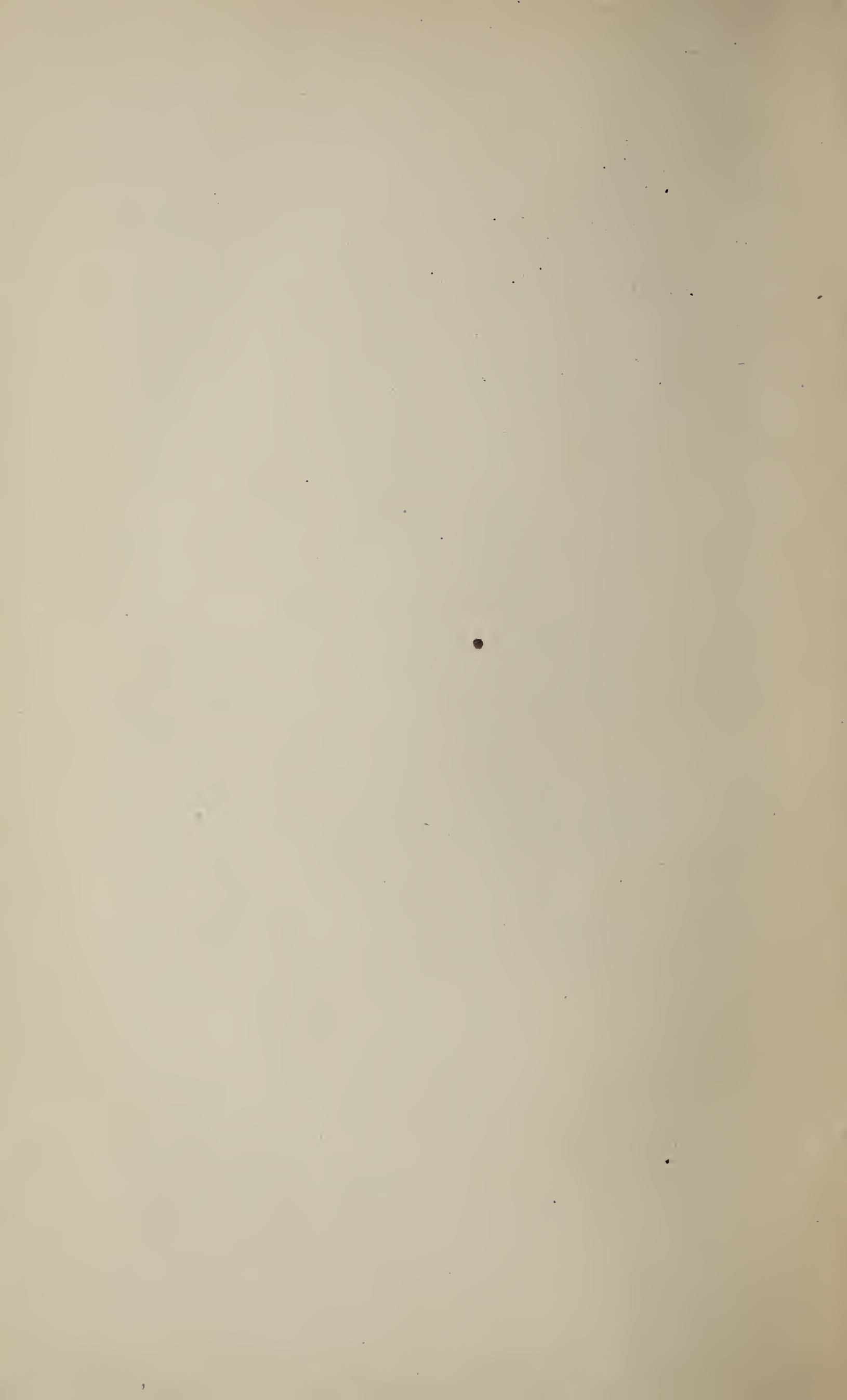
species: *Ixodes albipictus*, from Nova Scotia and Munson's Hill, Va., with a description and figure of the young; and records *I. variabilis* Say as also occurring at Munson's Hill, Va. He also describes as new, *Ixodes nigrolineatus* from Northern New York; *I. unipunctatus* from Mass. and Penn.; *I. Cookei* from Mass.; *I. leporis-palustris* from N. Carolina; *I. chordeilis* from Mass.; *I. bovis* from Missouri and Nicaragua (West Coast); *I. perpunctatus* from South America?; and re-describes *I. Bibronii* Gervais, from the West Coast of Nicaragua.

C. WRIGHT (Amer. Nat., iii, 51) notices the habits of the Cattle Tick.

PACKARD (Amer. Nat., iii, 364) briefly describes and figures several species, afterwards named and noticed in his "Guide."

PACKARD (Guide, 662) notices *Ixodes unipunctatus*, and figures it on pl. 10, fig. 11, and notices *I. bovis* (pl. 10, fig. 10). He briefly describes and figures *Nothrus ovivorus* n. sp., and figures *Cheyletus seminivorus* n. sp., and *Dermaleichus pici-pubescentis* n. sp.

SHIMER (Trans. Amer. Ent. Soc., ii, 319) describes as new *Vasates* (nov. gen.) *quadripedes*, which forms galls early in summer on the leaves of the white maple in Illinois; also *Acarus aceris*, n. sp., abounding on the under side of the leaves of the same tree.



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RECORD

OF

AMERICAN ENTOMOLOGY,

FOR THE YEAR 1873.

EDITED BY

A. S. PACKARD, JR., M. D.

J. W. W. A.

SALEM, MASS.

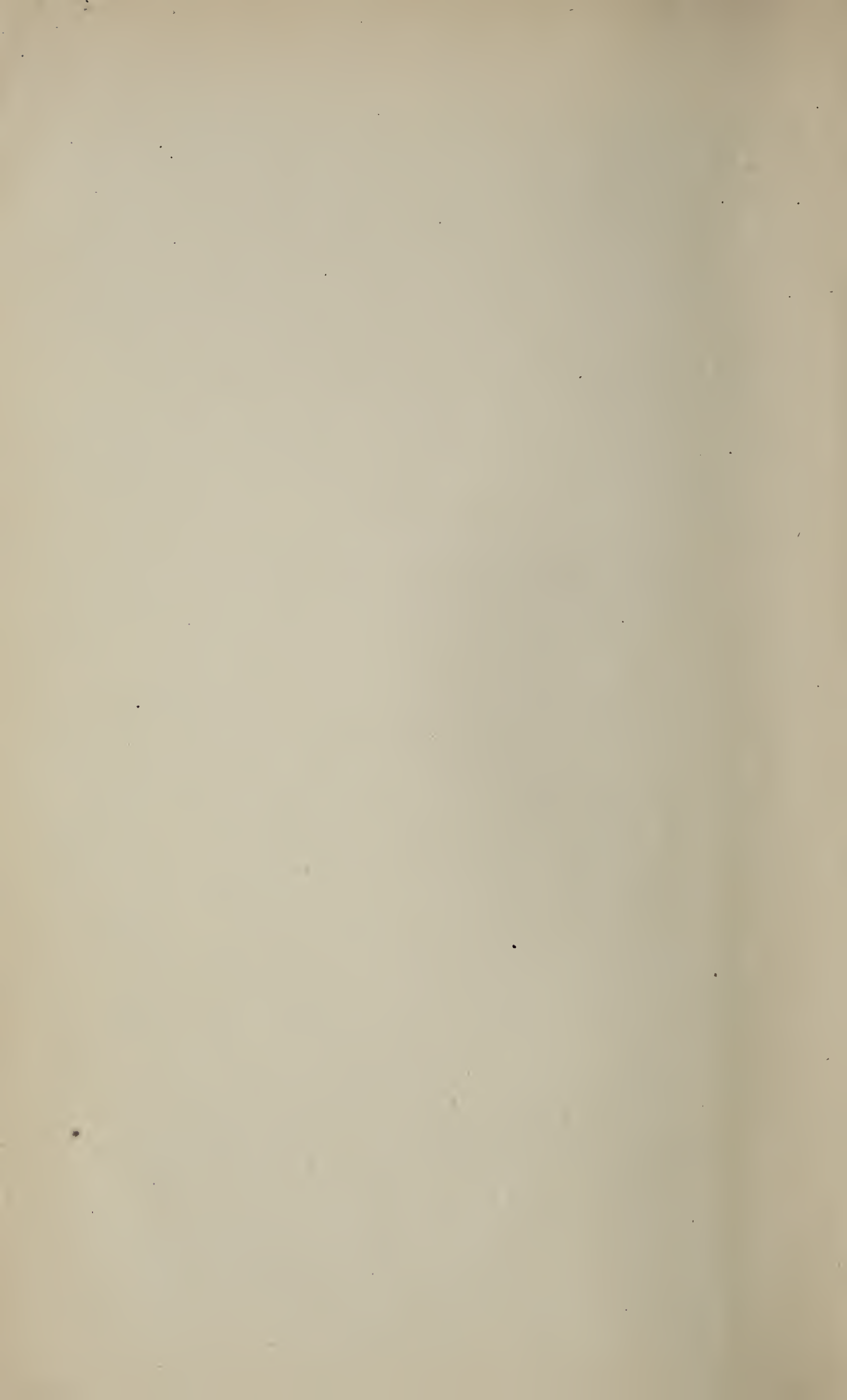
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RECORD OF AMERICAN ENTOMOLOGY.

FOR THE YEAR 1873.

HYMENOPTERA.

B. D. WALSH (Trans. Acad. Science, St. Louis, iii, p. 65-166). Descriptions of North American Hymenoptera, with notes by E. T. Cresson. In this posthumous paper besides some redescriptions of a few Tenthredinidæ a number of new genera and new species are described, with notes on other previously known forms and full comparative remarks on the genera and species.

F. WALKER (Can. Ent., 16, 43, 77). On the geographical distribution of some Genera of Canadian Insects. Relates to the distribution of certain Chalcids.

E. T. CRESSON (Can. Ent., 51, 66, 82). Descriptions of North American Hymenoptera, Nos. 5, 6, 7.

H. F. BASSETT (Can. Ent., 91). On the habits of certain Gall Insects of the genus Cynips.

W. SAUNDERS (Can. Ent., 101). The Raspberry saw fly, *Selandria rubi* Harris.

H. EDWARDS (Proc. Cal. Acad. Sc. v, 72 and Amer. Nat. vii, 772). Notes on the Honey Making Ant of Texas and New Mexico, *Myrmecocystus Mexicanus* Westmael.

JAMES BLAKE (Proc. Cal. Acad. Sc. v, 98). On the structure of the honey-bag in the honey-making ant, *Myrmecocystus Mexicanus*. He states that the "intestine

is not continued beyond the thorax" and that the entire abdomen forms the honey-bag.

A. FITCH (Trans. N. Y., Agricul. Soc. for 1867). 12th Ann. Rep. Ins. N. Y. 1868.

APIDÆ.

W. SAUNDERS (Report Ent. Soc. Ontario, Can., 25) notices the habits of *Osmia Canadensis* Cresson, which injures the leaves of the strawberry.

FORMICIDÆ.

H. EDWARDS (Proc. Cal. Acad. Sc. v, 72, Amer. Nat. vii, 772) describes the habits of *Myrmecocystus Mexicanus* Westmael.

ICHNEUMONIDÆ.

B. D. WALSH (Trans. Acad. Sc. St. Louis, iii, 69) describes as new *Joppidium* (n. g.) *ruficeps*; notices *Cryptus robustus* Cress. from Col.; describes as new *C. atricollaris*, *C. rhomboidalis*, *C. cinctipes*, *C. rufifrons*; redescribes *C.* (*Ischnus* Cress.) *albitarsis* Cress. = ♂ of *similis* Cress.; describes as new *C. nigricalceatus* ("merely a var. of *albitarsis*" Cress.), and redescribes *C. iridescens* Cress., *C. Americanus* Cress., *C. persimilis* Cress., *C. frater* Cress.; describes as new *C.?* *albisoleatus?*, which Cresson regards as new; redescribes *C. limatus* Cress.; describes as new *C. albicaligatus*, "a mere var. of *albitarsis*" Cress.; *C. picticoxus*; *C. ultimus*; redescribes *Bassus scutellaris* Cress. and describes as new *B. tripicticus* ("probably only a var. of *sycophanta*" Cress.), redescribes *B. sycophanta* Walsh; describes *B. ruficrus* n. sp., *B. semifasciatus* n. sp., *B. bicapillaris* n. sp., *Catocentrus* (n. g.) *philanthoides* Walsh, *Metopius pollinctorius* Say, *Exochus lævis* Cress., *E. albifrons* Walsh, *E. annulicrus* n. sp., *E. atriceps* n. sp., *E. albiceps* n. sp., *Exochistus pusillus* n. sp., *Polyrhabdus* (n. g.), *cariniger* n. sp., *Orthocentrus trifasciatus* n. sp., *O. stigmatias* n. sp., *Ceratoma apicalis* Cress., *C. fasciata* Cress., *Tryphon atricoxus* n. sp., ("probably only a var. of *T. dimidiatus*" Cress.), *Exenteron ornatus* n. sp., *E. flavicoxus* Cress., *Cteniscus albilineatus* n. sp., *Rhyssa humida* Say, *Ephialtes gigas* n. sp., *E. pygmæus* n. sp., *E. pusio* n. sp., *E. irritator* Fabr., *Cylloceria occidentalis* Cress., *Lampronota scutellaris* Cress., *L. tegularis* Cress., *L. amphimilæna* n. sp., *L. frigida* Cress., *L. interpellata* n. sp., *L. pictiventris* n. sp., *L. breviventris* n. sp., *L. Americana* Cress., *L. imitatrix* n. sp., *L. rubrica* Cress., *L. nigrita* Walsh ("belongs to *Arenetra* Holmgren" Cress.), *Glypta simplicipes* Walsh, *G. tuberculifrons* Walsh, *G. diversipes* n. sp., *G. rufipluralis* n. sp., *G. rufiscutellaris* Walsh, bred from gall on solidago inhabited by *Euryptychia saligneana* and another micro, *G. albiscutellaris* n. sp., *G. longiventris* Walsh, *G.*

rufigornis n. sp., *G. scitula* Cress., *Pimpla melanocephala* Brullé (“belongs to *Theronia* Holmgren” Cress.), *P. pedalis* Cress., *P. pterelas* Say, *P. annulipes* Brullé, *P. pictipes* n. sp., *P. annulicornis* Walsh, *P. (Cryptus) conquisitor* Say, *P. inquisitor* Say, *P. scriptifrons* Walsh, *P. vidua* n. sp., *P. cælebs* n. sp. (= ♂ *inquisitor* Cress.), *P? indagatrix* Walsh, *P. investigatrix* n. sp., *P. alboricta* Cress., *Polysphincta nigriceps* n. sp., *P. nigrita* n. sp., *P. pimploides* n. sp., *Exetastes suaveolens* n. sp., *E. fascipennis* Cress., *Leptobatus Illinoiensis* n. sp., *Arotes (Acænitus) decorus* Say, S. Ill., *A. amænus* Cress., *Acænites Rupinsulensis* Walsh; he refers *A. stigmaterus* Say to *Xylonomus*, and *A. decorus* Say to *Arotes*; *Phytodietus vulgaris* Cress., *P. distinctus* Cress., *Cryptocentrus* n. g. (Tryphon?) *submarginatus* Cress., *Xylonomus albopictus* Cress., *X. stigmapterus* Say, *Echthrus annulicornis* n. sp., *Labena grallator* (Say), *Odontomerus (Anomalon) mellipes* Say.

E. T. CRESSON (Can. Ent., 51) describes as new *Microdus imitatus*, Mass., *M. simillimus*, N. J., Penn., Ill., *M. calcaratus*, Del., *M. divisus*, Ill., *M. agilis*, Mass., *M. discolor*, *M. palleus*, Ill., *M. laticinctus*, Missouri, *M. cinctus*, Ill., *M. annulipes*, Mass., Penn., Ill., *M. larinoides*, Mass. Ill., *Earinus limitaris* Say, Canada, Mass. Penn., Va., and Ill. On p. 66, he gives a synopsis of the species of *Toxoneuron* and describes as new *Toxoneuron æthiops*, Cordova, Mex., *T. minutum* Ill., *T. Orizabæ*, Orizaba, Mex., *T. explorator* (Say), Ill., Texas, *T. Mexicanum*, Cordova, Mex., *T. apicale*, Ill., *T. tibiator* (Say), Ill., *T. thoracicum*, Cordova, Mex., *T. abdominale*, Ill., *T. seminigrum*, Colorado, *T. viator* Say, Arizona, *T. ornatum* Cordova, Mex., *Proterops Californicus*, California; on p. 82, he gives a synopsis of the species of *Helcon*, and describes as new *H. borealis*, Maine, *H. albitarsis*, Va., Ill., *H. frigidus*, Hudson's Bay, Vancouver Is., *H. Americanus*, Canada, Va., *H. pedalis*, Hudson's Bay, Mass.

Unless otherwise stated the species probably came from northern Illinois, though no locality except “North America” is given in the title or elsewhere.

CHALCIDIDÆ.

W. SAUNDERS (Report Ent. Soc. Ontario, Can., 14) notices *Isosoma vitis* and its ravages in Iowa.

CYNIPIDÆ.

H. F. BASSETT (Can. Ent., 91) states that *Cynips q. operator* is double brooded; thirty of one brood of females ovipositing in the buds of the oak, and again some of a second brood ovipositing in the young acorns of *Quercus ilicifolia*. From these and other facts he infers “that all our species that are found only in the female sex are represented in another generation by both sexes, and that the two broods are, owing

to seasonal differences, produced from galls that are entirely distinct from each other."

TENTHREDINIDÆ.

B. D. WALSH (Trans. Acad. Sc. St. Louis, iii, 65) redescribes at length *Hylotoma scutellata* Say, *H. coccinea*?? Fabr., *H. dulciaria* Say, and *H. calcanea* Say. As no localities are given the specimens probably occurred in Illinois.

W. SAUNDERS (Report Ent. Soc. Ontario, Can. 24) notices *Emphytus maculatus* Norton.

————— (Can. Ent. 101) describes the habits, egg, larva at different ages, and cocoon of *Selandria rubi* Harris.

F. WALKER (Can. Ent., 77) notices some of our species of *Sirex* and *Tremex*.

A. FITCH (12th Ann. Rep. Ins. N. Y. 1868, 908) gives an account of the habits and larva of *Pristophora rufipes* St. Farg.? and *Nematus trimaculatus* St. Farg. (= *N. ventricosus*.)

RHOPALOCEROUS LEPIDOPTERA.

H. EDWARDS (Proc. Cal. Acad. Sci., v, 161-172) in his Pacific Coast Lepidoptera gives notes on the transformations and food-plants of the Diurnal Lepidoptera of California and the adjacent districts, and asks the assistance of all who can aid him in studying the species of the West Coast.

W. H. EDWARDS (Descriptions of Diurnal Lepidoptera found within the United States, Trans. Amer. Ent. Soc., v, 343-8) describes six butterflies, mostly from Arizona.

————— (Can. Ent. v, 8-10) offers some Remarks on changes in names of certain butterflies in opposition to the views of Scudder.

————— (Can. Ent. v, 21-36) in "some Remarks on Entomological Nomenclature," discusses the rules of Nomenclature adopted by the British Association,

as they apply especially to the publications of Staudinger, Kirby and Scudder on Lepidoptera. He quotes largely from entomological writers who have paid more or less attention to this branch of the subject, and urges the adoption of an amended code.

————— (Can. Ent. v, 223-5) gives "notes on the early stages of some of our butterflies," from experiments in the field.

A. R. GROTE (Can. Ent. v, 62-3, 143-5) continues his observations "on Mr. Scudder's systematic revision of some of the American butterflies," restricting his remarks mainly to the genera.

————— (Bull. Buff. Soc. Nat. Sci., i, advance sheets of part iv) records the butterflies obtained by W. Couper at Anticosti.

————— (Trans. Am. Ent. Soc., iv, 426) gives a list of the species described by Mr. Robinson and himself, adding a few synonymical remarks.

C. J. MAYNARD (Amer. Nat. vii, 177-8) describes the habits of gregarious butterflies at Key West, principally *Danais Berenice*, *Agraulis vanillæ* and *Pieris Monuste*.

T. L. MEAD (Can. Ent. v, 18) inveighs against Scudder's use of the generic name *Papilio*.

————— (Can. Ent. v, 80) suggests sugaring for butterflies.

————— (Can. Ent. v, 108-9) writes in general terms upon "our specific nomenclature" of butterflies, in opposition to the views of Mr. Morrison.

H. K. MORRISON (Can. Ent. v, 70-1) discusses in general terms the specific nomenclature of butterflies, favoring a strict adherence to the law of priority.

————— (Can. Ent. v, 166-8) discusses "the law of priority in nomenclature" with special reference to Lepidoptera.

C. V. RILEY (Amer. Nat. vii, 513-21) opposes Mrs. Treat's conclusion that starved caterpillars produce males, and overfed caterpillars females, showing by his own experiments that the opposite was sometimes or generally the case. He admits that the female requires more nourishment than the male, but denies that sex is not determined in the egg of insects.

S. H. SCUDDER (Amer. Nat. vii, 490) records the occurrence of ocelli in some species of the Hesperid genus *Lerema*, the first instance known among butterflies.

————— republishes Hübner's "Tentamen," in which the butterflies (Phalanx I, Papiliones) are divided into two tribes, Nymphales and Gentiles, the former into eight generic groups, each with a type annexed, as follows: *Nereis Polymnia*, *Limnas Chrysippus*, *Lemonias Maturna*, *Dryas Paphia*, *Hamadryas Jo*, *Najas populi*, *Potamis Iris* and *Oreas Proserpina*; the Gentiles into five: *Rusticus Argus*, *Princeps Machaon*, *Mancipium brassicæ*, *Consul Fabius* and *Urbanus malvæ*.

H. STRECKER (Lepidoptera, Rhopaloceres and Heteroceres, indigenous and exotic, 4to, Reading, Pa.) has commenced a serial illustrated work on general Lepidoptera, each part consisting of about eight pages of text and a colored plate of butterflies or moths, fairly executed and crowded with figures; alternate (even) parts appearing at intervals of three or four months, are devoted to butterflies; three such parts have appeared during the year, but occasional notes on butterflies appear in the other parts and also in the first number, omitted in the "Record" of last year.

MARY TREAT (Amer. Nat. vii, 129-32) in an article on "Controlling sex in butterflies," relates her experience in overfeeding and underfeeding caterpillars of *Papilio Asterias*, *Vanessa Antiopa* (and *Dryocampa rubicunda*);

the nearly uniform result was that the former process produced females, the latter males. "It would seem then," to use her own words, "that sex is not determined in the egg of insects and that the female requires more nourishment than the male."

NYMPHALES.

H. EDWARDS (Proc. Calif. Acad. Sci. v, 166-172) describes the caterpillar and chrysalis of *Danais Archippus*, *Melitæa Chalcedon*, *M. Editha*, *M. palla*, *Phyciodes Mylitta*, *Grapta Satyrus*, *G. Zephyrus*, *Vanessa Antiopa*, *V. Milberti*, *Pyrameis Huntera*, *P. cardui*, *P. Atalanta* and *Junonia Cænia* and the chrysalis of *Limenitis Lorquini* and *L. Californica*.

W. H. EDWARDS (Trans. Am. Ent. Soc. iv, 343) describes *Satyrus Wheeleri* ♀ nov. sp., found in the Rocky Mountains.

——— (Can. Ent. v, 9-10) discusses the synonymy of the northern species of *Danais*, for which he would retain the name of *Danais Archippus*, because it "has been generally known and written of and figured under that name." He also objects to the restoration of the earlier name *Astyanax* for *Limenitis Ursula*, because the *Astyanax* of Fabricius' day was duplicated in the genus *Papilio* of that time; further he "does not allow" that *Proserpina* is a variety of *Ursula*.

——— (Can. Ent. v, 184) records experiments proving that *Grapta Dryas* and *G. comma* are dimorphic forms of one species. He proposes to call the species *comma*, one form *Dryas* and the other *Harrisii*.

——— (Can. Ent. v, 224-5) gives his experience in attempting to raise *Phyciodes Tharos* and *P. Nycteis* from the egg; successfully, in the latter case only. The egg cluster and larvæ of the latter are described.

——— (Can. Ent. v, 232-3) believes that *Limenitis Proserpina* and *Arthemis* will be found to be dimorphic forms of one species. He founds this opinion on their common size and form, and their uniform association in life.

A. R. GROTE (Can. Ent. v, 62-3, 143-4) defends the use of the generic names *Æneis*, *Enodia*, *Minois*, *Apatura*, *Aglais*, *Vanessa*, *Junonia*, *Euptoieta*, and Scudder's divisions of fritillaries; also, qualifiedly, the genera *Argus* and *Megisto*. He thinks *Grapta* should be retained for *Polygonia* "on general grounds;" objects to Scudder's use of *Papilio* and proposes the name *Scudderia* for the *Papilio Antiopa* of Linné. He further claims that *Plexippus* should be restored to *Danais Archippus*, and believes that *Basilarchia Proserpina* is a dis-

tinct species, but suggests "that we have possibly to do with a race of *Arthemis*."

A. R. GROTE (Bull. Buff. Soc. Nat. Sci., i, 179) records *Argus Eurydice* from N. York.

————— (Bull. Buff. Soc. Nat. Sci., i, advance sheets of pt. iv) records *Vanessa Atalanta*, *Argynnis Atlantis* and *Phyciodes Tharos* from Anticosti.

C. V. RILEY (5th Report Ins. Miss., 145-9) describes the egg and the larval stages of *Paphia glycerium*, with woodcuts of the latter; he discusses the food-plant, the life history, mode of hibernation and parasites of the insect.

————— (Trans. Acad. Sci. St. Louis, iii, 193-208) gives a very full account of the life history of *Apatura Lycaon* and *A. Herse*, with descriptions of all their early stages and remarkably good woodcuts of eggs, caterpillars, chrysalides and butterflies of each species, together with enlarged views of the heads of the caterpillar of each moult, in all thirty-three figures. The difference in the outline of the wings is happily illustrated by a simple outline of the border of the female outside the full sketch of the smaller male. Remarks on the synonymy of the species are given.

W. SAUNDERS (Can. Ent. v, 4-8) gives a popular account of *Danais Archippus* with illustrations of the different stages.

H. STRECKER (Lepidoptera, part i, 1872) states that he possesses four specimens of *Vanessa Lintnerii*.

————— (Lepidoptera, part ii) makes some remarks on the synonymy of *Eresia Yorita*.

————— (Lepidoptera, part iii) remarks on the synonymy of *Eresia Sydra*.

————— (Lepidoptera, part iv) describes and figures *Chionobas Uhleri*, *Satyris Ridingsii*, *Satyris Sthenele* and *Satyris Hoffmani*, nov. sp. or var. from Nevada.

RURALES.

W. H. EDWARDS (Trans. Am. Ent. Soc. iv) describes *Lemonias Cythera*, nov. sp. (p. 345) from Arizona, *Thecla Crysalus*, nov. sp. (p. 344) from Lake Paso and *Lycæna Melissa*, nov. sp. (p. 346) from Colorado, Nevada and Arizona.

————— (Can. Ent. v, 223-4) gives his experience in obtaining eggs from the female of *Thecla Poeas* and *Lycæna pseudargiolus*, and describes all the earlier stages of the former.

A. R. GROTE (Can. Ent. v, 144) argues that *Calephelis* should be retained for the species placed by Scudder in *Polystichtis*, on the ground that the latter should be retained for the S. American forms placed by Hübner in this group.

A. R. GROTE (Bull. Buff. Soc. Nat. Sci. i, 178-9) describes *Callicista ocellifera*, nov. gen. et spec., from New York.

——— (Bull. Buff. Soc. Nat. Sci. i, advance sheets of pt. 4) describes *Glaucopsyche Couperi*, nov. sp., from Anticosti. He also records *Cyaniris Lucia* from the same place.

C. J. MAYNARD (Amer. Nat. vii, 178) describes *Lycæna modesta*, nov. sp., from Florida.

H. K. MORRISON (Bull. Buff. Soc. Nat. Sci. i, advance sheets of pt. 4) describes *Lycæna pseudofea*, nov. sp. and *Lycæna Cassius*, var. *Floridensis*, nov. var., both from Key West; he also states that *Lycæna modesta* belongs to *Thecla*.

H. STRECKER (Lepidoptera, pt. ii) makes some remarks on the confusion which he thinks exists between *Lycæna Helloides*, *L. Castro* and *L. Ianthæ*.

PAPILIONIDÆ.

C. J. S. BETHUNE (Can. Ent. v, 37-9) gives a popular account and woodcuts of *Pieris oleracea* and (ib. 41-3) of *Pieris rapæ* and *P. Protodice*.

——— (Can. Ent. v, 139) records the extension of *Pieris rapæ* to Port Hope, Ontario.

F. B. CAULFIELD (Can. Ent. v. 59) gives his experience in rearing the yellow variety of *Pieris rapæ*.

EDITOR NAT. CANADIEN (Nat. Can. v, 125-7, 149-50) gives an account of the *Pteromalus* parasitic on *Pieris rapæ*.

H. EDWARDS (Proc. Cal. Acad. Sci. v, 162-166) describes the caterpillar and chrysalis of *Papilio Philenor*, *P. Zolicaon*, *P. Asterias*, *P. Eurymedon*, *Colias Eurytheme*, and *Terias Nicippe* and the chrysalis of *Papilio Rutulus* and *Neophasia Menapia*.

W. H. EDWARDS (Can. Ent. v, 8-9) objects to the use of *Polyxenes* for *Papilio Asterias*, although acknowledging that it is the older of the two names used by Fabricius. He also urges the undesirability of applying the name *Glaucus* to the species usually known as *Papilio Turnus*, because the former name has hitherto been used for the black female only.

——— (Can. Ent. v, 153-4) describes some of the distinguishing characters of *Papilio brevicauda*.

A. R. GROTE (Bull. Buff. Soc. Nat. Sci. i, advance sheets of pt. iv) describes *Ganoris oleracea*, var. *borealis*, nov. var. from Anticosti, and offers some remarks on *Papilio brevicauda* taken at the same place.

W. SAUNDERS (Can. Ent. v. 221-3) gives the history, describes the various stages and figures the wings ♂ and ♀ of *Colias Philodice*.

H. STRECKER (Lepidoptera, part ii) describes and figures *Papilio Indra*, *P. Anticostiensis*, nov. sp. from Anticosti, *P. Pylumnus* and *Pieris Menapia*. He also offers synonymical remarks on *Papilio Bur-*

tonii, *P. Caleli* and *Colias Semperi* and gives notes by W. Couper on the flight and habits of *P. Anticostiensis*.

H. STRECKER (Lepidoptera, pt. iv) describes and figures *Papilio Eurymedon*, *P. Marchandii* and *Colias Dimera*.

————— (Lepidoptera, pt. vi) describes and figures *Papilio Daunus*, *P. Zolicaon*, *P. asteroides*, *Anthocaris lanceolata*, and *A. Julia*. He also expresses his belief (p. 46) that *Papilio Aliaska* is not distinct from *P. Machaon*, and describes (p. 49) the egg and caterpillar of *P. Anticostiensis*.

URBICOLÆ.

G. M. DODGE (Can. Ent. v, 60) states that the insect formerly described by him as *Hesperia Illinois* is identical with *H. Acanootus*.

W. H. EDWARDS (Trans. Am. Ent. Soc. iv, 346) describes *Hesperia Chusca* nov. sp. and *H. Yuma* nov. sp. from Arizona.

A. R. GROTE (Bull. Buff. Soc. Nat. Sci. i, advance sheets of pt. iv) records *Cyclopides Mandan* from Anticosti.

H. K. MORRISON (Can. Ent. v, 164) gives some "notes on an interesting specimen of *Pamphila Zabulon*."

H. STRECKER (Lepidoptera, pt. i, 1872) believes that *Hesperia Pochontus* is a "melanotic female variety" of *H. Hobomok*.

P. C. ZELLER (in Grote, Bull. Buff. Soc. Nat. Sci. i, 168) says that *Hesperia communis* is called *H. alborittata* in the Berlin Museum.

HETEROCEROUS LEPIDOPTERA.

P. C. ZELLER (Verhandlungen der K. K. Zool. Botan. Gesellschaft in Wien, 1872, 447-566; 1873, 1-134). Beiträge zur Kenntniss der Nordamerikanischen Nachfalter, besonders der Microlepidopteren. With four plates. The species are almost entirely from Texas, collected by Messrs. Boll and Belfrage, and the types belong to the Museum of Comparative Zoology.

————— and I. BOLL (Ent. Zeitung, Stettin, 201). Nordamerikanische Tineen.

A. R. GROTE (Bull. Buff. Soc. Nat. Sci., i, 1). Description of New North American Moths.

- A. R. GROTE (Bull. Buff. Soc. Nat. Sci., i, 17). Catalogue of the Sphingidæ of North America.
- (Bull. Buff. Soc. Nat. Sci., i, 29). Catalogue of the Zygænidæ of North America.
- (Bull. Buff. Soc. Nat. Sci., i, 37). Conclusions drawn from a Study of the Genera *Hypena* and *Herminia*.
- (Bull. Buff. Soc. Nat. Sci., i, 73). Contributions to a Knowledge of North American Moths.
- (Bull. Buff. Soc. Nat. Sci., i, 95). A Study of North American Noctuidæ.
- (Bull. Buff. Soc. Nat. Sci., i, 129). Descriptions of Noctuidæ, principally from California.
- (Bull. Buff. Soc. Nat. Sci., i, 156). On the North American Geometridæ in the Collection of the British Museum.
- (Bull. Buff. Soc. Nat. Sci., i, 168). Kleiner Beitrag zur Kenntniss einiger Nordamerikanischer Lepidoptera.
- (Bull. Buff. Soc. Nat. Sci., i, 175). Description of the genera *Argyrophyes* and *Condylolomia* and of a species of *Deuterollyta*.
- (Bull. Buff. Soc. Nat. Sci., i, 180). Description of three Genera of Noctuidæ:
- (Bull. Buff. Soc. Nat. Sci., i, 183). On Wallengren's "Lepidoptera Scandinaviæ Heterocera disposita et descripta," a criticism with reference to the Sphingidæ.
- (Can. Ent., v, 161). On the genus *Catocala*.
- (Can. Ent., v, 225). Description of new Deltoids.

A. FITCH. Twelfth and Fourteenth Annual Rep. Ins. N. Y., 1868, 1872.*

H. EDWARDS (Proc. Cal. Acad. Sci., v, 109). Pacific Coast Lepidoptera. No. 1, Description of some new or imperfectly known Heterocera. No. 3, Notes on some Zygænidæ and Bombycidæ of Oregon and British Columbia, with descriptions of new species.

H. STRECKER. Lepidoptera, Rhopaloceres and Heteroceres, indigenous and exotic, etc. 3, 5, 7.

B. P. MANN (Proc. Bost. Soc. Nat. Hist., xv, 381). *Anisopteryx vernata* distinguished from *A. pometaria*.

C. V. RILEY (Trans. Acad. Sci. St. Louis, iii, 55, 178). On a new genus in the Lepidopterous Family Tineidæ, with Remarks on the Fertilization of *Yucca*, with supplementary note, 178, with illustrations. In this paper it is shown that *Yucca puberula* or *Y. glauca* is solely fertilized by *Pronuba yuccasella* Riley, which oviposits, he thinks, but has not detected the insect in the act, within the fruit. With her maxillary palpi, modified for the purpose, the female collects the pollen in large pellets, and thus laden clings to the top of the pistil, bends her head, thrusts her tongue into the stigmatic nectary and brings the pollen mass right over its mouth, thus fertilizing the plant. The paper includes full descriptions of the larva, pupa and adult. See also Fifth Ann. Rep. Missouri, 150.

————— Fifth Annual Report on the Noxious, Beneficial and other Insects of the State of Missouri.

————— (Can. Nat., 109). Notes on *Hyperchiria Io* (Fabr.).

* These and the tenth and eleventh Reports have been overlooked in the preparation of these records. They contain descriptions and biological notes on insects of all orders since 1867.

A. S. PACKARD, JR. Third Annual Report on the Injurious and Beneficial Insects of Massachusetts.

————— (Fifth Rep. Peab. Acad. Sci.). Descriptions of new American Phalænidæ.

————— (Fifth Rep. Peab. Acad. Sci.). Notes on North American Moths of the Families Phalænidæ and Pyralidæ in the British Museum.

————— (Ann. Lyc. N. Y., x, 257). Catalogue of the Pyralidæ of California, with descriptions of new Californian Pterophoridæ.

————— (Ann. Lyc. N. Y., x, 267). Notes on some Pyralidæ from New England, with remarks on the Labrador species of this family.

————— (Amer. Nat., vii, 453). On the Distribution of Californian Moths. The Californian insect fauna consists of three assemblages, one circumpolar, one indigenous and a third derived from Mexico. The indigenous is unlike that of northeastern Asia, and adopting the suggestions of Profs. Gray and Lesquereux, the forms peculiar to California and Oregon are supposed to have been derived, like the fossil plants, from an Arctic tertiary continent of which Greenland and Spitzbergen are the remains. The descendants of the Tertiary Arctic insect fauna have survived in Europe and America, and climatic and other circumstances have caused the preservation of certain forms in California and Europe and their extinction in northeastern America, and *vice versa*.

SPHINGIDÆ.

A. R. GROTE (Buff. Soc. Nat. Sci., i, 2), after remarking on the genus *Hemaris*, describes as new *H. tenuis* (Pl. 1, fig. 6), N. Y., Penn., *H. marginalis* (Pl. 2, fig. 10), and notices *H. Thetis* Grote, *H. diffinis* Grote, *H. axillaris* Grote, and tabulates the American species of *Hæmorrhagia*. On p. 17 he gives a catalogue of the Sphingidæ of North America, and in it proposes the new genus *Calasymbolus* for *Sphinx Astylus* Drury, while he regards Walker's *Lapara bombycoides* as prob-

ably identical with *Ellema Harrisii*, judging by a drawing. On p. 183 he criticises Wallengren's synonymy of certain genera of this family.

H. EDWARDS (Proc. Cal. Acad. Sci., v, 109) describes as new *Sphinx perelegans*, *S. oreodaphne*, *S. sequoiæ* Boisd., all from Cal., *S. Vancouverensis*, Vancouver Is.

H. STRECKER (Lepidoptera, 51). Monograph of the known species of *Smerinthus* in North America, with a catalogue and synonymy, with colored lithographic figures. Descriptions and figures are given of *Smerinthus Juglandi* Sm. and Abb., *S. pallens* n. sp., Pl. vii, fig. 140, Texas, *S. excæcata* Sm. and Abb., *S. myops* Sm. and Abb., *S. Astylus* Drury, *S. geminatus* Say, and var. *Jamaicensis*, *S. ophthalmicus* Boisd., Cal., Wash. Terr., Lake Superior, *S. Cerisyi* Kirby, R. I., Rupert House, Br. Amer., *S. modesta* Harr. *S. hybridus* Westw. (hybrid between the European *S. ocellata* and *S. populi*), Europe.

W. SAUNDERS (Rep. Ent. Soc. Ont. Can., 10) gives a popular account of the habits of *Philampelus Achemon*, and *Thyreus Abbotii*.

T. GLOVER (Rep. Dep. Agric., 164) remarks on the habits of *Macrosila Carolina*.

ÆGERIADÆ.

E. B. REED (Rep. Ent. Soc. Ont. Can., 44) gives a popular account of *Ægeria exitiosa* Say.

ZYGÆNIDÆ.

A. R. GROTE (Bull., Buff. Soc. Nat. Sc. i, 29), in his catalogue of the North American species of this family, notices in a note certain species of *Alypia*, and proposes *Euctenucha* as a subgenus of *Ctenucha*.

H. EDWARDS (Proc. Cal. Acad. Nat. Sc. v, iii) describes as new *Pseudalypia* (nov. gen.) *Crotchii*, Cal., *Ctenucha Walsinghamii*, Oregon. On p. 183 records *Alypia Sacramenti*, Dalles, Oregon, Lake Quesnelli, Br. Col., *A. Ridingsii* Grote, Cariboo, Br. Col., and an undescribed *Alypia* from Br. Col., *Scepsis Matthewi*, Vancouver Is., *Sarrothripa Columbiana*, Victoria, Vancouver Is.

BOMBYCIDÆ.

H. EDWARDS (Proc. Cal. Acad. Sc. v, 112) describes as new *Epialus modestus*, Cal. p. 188 Vancouver Is. On p. 185 *Lithosia candida*, Victoria, V. I., *Clemensia irrorata* Victoria, V. I., and records *Epicallia virginialis* Boisd., *E. guttata* G. and R. from Oregon and Vanc. Is., *Arctia Americana* Harr., Victoria, V. I., *A. Achaia* Boisd., Oregon, *Leucartia acraea* Pack., *Pyrrhactia isabella* Pack. *Spilosoma Virginica* Walk., *Hyphantria textor* Harr., Oregon, *Halesidota Agassizii* Pack., *H. argentata* Pack., Victoria, V. Is., and *Antarctia punctata* Pack., Oregon, *Phragmatobia fuliginosa*, Victoria, V. Is., *Orgyia badia* n. sp. last described, Victoria, V. Is., *Telea Polyphemus* Hübn., Victoria, Van. Is., Cal., Cape

St. Lucas and San Blas, Mexico, *Pseudohazis eglanterina* Boisd., Van. Is., Br. Col., Oregon, *Drepana sicutifer* Pack., Van. Is.

H. STRECKER (Lepidoptera, 23) gives notes on the synonymy of *Arctia speciosa* Möschler and *A. Quenselii* Payk. and regards *Arctia Americana* Harris = *A. caja* auct. of Europe.

C. V. RILEY (5th Ann. Rep. Missouri, 127) figures and describes the transformations of *Hemileuca Maia* Drury, *Hyperchiria Io* (Fabr.). See also p. 109, and *Anisota rubicunda* (Fabr.).

C. J. S. BETHUNE (Rep. Ent. Soc. Ont. Can.) refers to *Hyperchiria Io* (Fabr.).

E. B. REED (Rep. Ent. Soc. Ont. Can., 37) refers to *Dryocampa rubicunda* (Fabr.), *Telea Polyphemus* Hübner, *Platysamia Cecropia* (Linn.).

W. SAUNDERS (Can. Ent. v, 75) gives a popular sketch of *Pyrrharctia isabella*.

O. S. WESTCOTT (Can. Ent. v, 137) gives a note on the habits of *Pyrrharctia isabella* and states that he has bred *Ichneumon signatipes* Cress. and *Trogus obsidianator* Brullé from its cocoons.

A. R. GROTE (Can. Ent. v, 228) regards *Adelocephala vaspa* Boisd. as a synonyme of *A. albolinea* G. and R.

NOCTUIDÆ.

P. C. ZELLER (Verh. K. K. Zool. bot. Ges. Wien. 1873, 3) describes as new *Agrophila truncatula* (Taf. iii, fig. 1) and *Metoponia obtusula* (Taf. iii, fig. 2) from Texas.

A. R. GROTE (Bull. Buf. Soc. Nat. Sc. i, 9) describes as new *Leucania Harveyi* (Pl. 1, fig. 14) N. Y., *L. Henrici* (Pl. 1, fig. 15) N. Y., *L. evanida* (Pl. 1, fig. 16) N. Y. and *Caradrina miranda*, N. Y.

————— (Bull. Buff. Soc. Nat. Sc. i, 76) gives a list of the North American Noctuo-Bombycini, with taxonomical remarks, and describes as new *Acronycta connecta*, N. Y., *A. ovata* (Pl. 2, fig. 14 ♂) Penn., *A. sperata* (Pl. 2, fig. 1 ♂) N. Y. Penn., and *A. insolita*, Penn. He divides *Acronycta* into several subsections, *i.e.*, *Triæna* Hübn., *Acronycta* Hübn., *Megacronycta* (new), *Apatela* Ochs., *Lepitoreuma* (new), and *Eulonche* (new). He describes as new *Agrotis pitychrous* (Pl. 2, fig. 11 ♂) N. Y., *C. ericta* (Pl. 2, fig. 18). p. 96 *Agrotis auxiliaris*, Colorado, *A. repentis* G. and R., *A. balanitis* (Pl. 3, fig. 14) Col., *A. atrifrons*, Col., *A. mimallonis*, N. Y., *A. fumalis*, N. Y., *A. herilis*, Atlantic District, Ala., *A. saxatilis*, N. Y., Col., *Ufeus* (nov. gen.) *satyricus* (Pl. 3, fig. 4 ♀), Canada, N. Y., *U. plicatus*, Penn., *Mamestra Farnhami* (Pl. 3, fig. 2 ♂) Col., *Dianthæcia meditata*, N. Y., *Oncocnemis Dayi* (Pl. 3, fig. 8) Col., *O. Hayesii* (Pl. 3, fig. 13) Col., *O. Chandleri* (Pl. 3, fig. 9), Col., *Hadena auranticolor*, Col., *Ablepharon* (nov. gen.) for *Leucania Henrici* Grote, *Ommatostola* (nov. gen.) *Lintneri*, N. Y., *Cucullia Yosemiteæ* (Pl. 3, fig. 3) Cal. *Xylina sculpta* (Pl. 3, fig. 1, ♀), N. Y., Penn.,

Lygranthæcia G. and Rob. (nov. gen.) *marginata* (Harr.) Mass. to Ala., *Heliolonche modicella* (Pl. 3, fig. 12) Cal., *Heliothis mitis* (Pl. 3, fig. 7 ♀) *H. suetus* (Pl. 3, fig. 10 ♂) Col., *H. persimilis* (Pl. 3, fig. 11, ♀) Col., *H. pauxillus* (Pl. 3, fig. 6, ♂) Col., *H. atrites* Missouri; refers *Anthæcia Spraguei* Gr., *A. lynx* Gr., *A. Packardii* Gr., *A. nobilis* Gr., *A. mortua* Gr., and *A. jaguarinus* Gr., and *Noctua nundina* Drury to *Heliothis*; *Heliothis Meadi* (Pl. 3, fig. 5) Col., *Argillophora* (nov. gen.) *furcilla* Ala., *Harveya* (nov. gen.) *auripennis* Kentucky, Fla., *Spiloloma* (nov. gen.) *lunilinea* West Va.; p. 129, he records *Habrosyne scripta* from Sitka, *Admetovis* (nov. gen.) *oxymorus* (Pl. 4, fig. 5 ♀) California, Colorado, *A. Vancouverensis* (Pl. 4, fig. 4, ♂) Vancouver's Is., *A. Wilsoni* (Pl. 4, fig. 3 ♂) Cal., *Ammoconia badicollis* (Pl. 4, fig. 18 ♀) N. Y., *Pleonectopoda* (nov. gen.) *Lewisii* (Pl. 4, fig. 10 ♂) Colorado, *Eupsophopoctes* (nov. gen.) *procinctus* (Pl. 4, fig. 6) Cal., *Mamestra chartaria* (Pl. 4, fig. 12, ♂), *M. cuneata* (Pl. 4, fig. 9, ♀), Cal., *M. niveiguttata* (Pl. 4, fig. 16 ♂) *M. (Dianthæcia?) leucogramma*, Cal., *M. (Dianthæcia?) 4-lineata* (Pl. 4, fig. 15, ♂) *Oncocnemis Glennyi* (Pl. 4, fig. 17 ♂), Col.; p. 142 refers *Gortyna cataphracta* Gr. to *Hydræcia*, *Xylomiges curialis* Cal. *X. patalis* (Pl. 4, fig. 11 ♀), Cal.; on p. 144 he refers *Xylina sculpta* Gr. and *X. capax* Gr. and Rob. to *Anytus* (nov. gen.); *Plusia Pasiphæia* (Pl. 4, fig. 1, ♂), Cal., *Plusia Putnami* (Pl. 4, fig. 2 ♂), N. Y.; records *Plusia Ni* from Cal. and Ala., and *Alaria florida* from Nevada, *Heliothis* (*Melicleptria*) *celeris*, Cal., *H. (Melicleptria) diminutivus*, Cal., *H. (Melicleptria) Californicus*, Cal., *Annaphila* (nov. gen.) *diva* (Pl. 4, fig. 14 ♂) Cal., *A. depicta* (Pl. 4, fig. 13 ♀) Cal., *A. davistica* (Pl. 4, fig. 7, ♀) Nevada, *Axenus* (nov. gen.) *analis* (Pl. 4, fig. 8 ♂) Cal., *Tarache terminimaculata*, N. Y., *T. flavipennis* Cal.; records *Syneda Howlandii*, *Euclidia cuspidata* (Hüb.) from Cal. and *Drasteria convalescens* Guen. from Cal., *D. erichta* Guen. from N. Y., *D. erichta* Hübn. from Cal. and Col.; *D. cærulea*, Cal.; on p. 180 refers *Phosphila turbulenta*, Hübn. from N. Y., to *Hadena*; describes as new *Homohadena* for *Hadena badistriga*, *Adipsophanes* (nov. gen.) *miscellus*, Mass., N. Y., Penn., *Plagiomimicus* (nov. gen.) *pityochromus*, N. Y., Ala.

————— (Can. Ent. v, 161) describes as new *Catocala Meskei*, N. Y., *C. Arizonae*, Borders of Arizona and New Mexico, with notes on *C. junctura* Walk., *C. nebulosa*, *C. neogama*, *C. parta*, *C. nov. var. ? perplexa* Strecker, and *C. Walshii*.

H. ED ARDS (Proc. Cal. Acad. Nat. Sc. v, 189) records *Lacinia expultrix* Grote from near Cariboo, Br. Col., *Thyatira derasa* Boisd., Alaska and Victoria Is., *Cymatophora improvisa* n. sp., Cascades, Wash. Terr.

H. STRECKER (Lepidoptera 17) figures and describes *Catocala tristis* Edw., *C. viduata* Guen., *C. lachrymosa* Guen., *C. obscura* n. sp. (Pl. iii,

fig. 4 ♂), N. Y., *C. relicta* Walk., *C. Briseis* Edw., *C. Faustina* n. sp. (Pl. 3, fig. 8 ♂), Arizona, *C. coccinata* Grote, Penn., *C. cerogama* Guen., *C. serena* Edw., Penn., *C. insolabilis* Guen., *C. desperata* Guen., *C. subnata* Grote, *C. neogama* (Abbot & Sm.), *C. Clintonii* Grote, *C. antinympha* Hübn., *C. fratercula* G. & R., R. Is., *C. unijuga* Walk., *C. parta* Guen., feeds on *Salix*, *C. perplexa* nov.? var. (Pl. v, fig. 11 ♂), N. Y., *C. concumbens* Walk.

W. SAUNDERS (Rep. Ent. Soc., Ont., Can., 23) gives a popular account of *Acronycta oblinita* Sm. & Abb.

——— (Can. Ent., 10) describes the larva of *Plusia balluca*.

——— (Can. Ent. v, 206) describes the larva of *Cosmia orina* Guen.

C. J. S. BETHUNE (Rep. Ent. Soc., Ont., Can., 32) gives a popular account of *Plusia balluca* Geyer.

E. B. REED (Rep. Ent. Soc., Ont., Can., 41) gives a popular account of *Apatela Americana* Harr., and *Ophiura bistriasis* (Hübn.) which feeds on maple.

F. B. CAULFIELD (Can. Ent. v, 155) records *Erebus odora* (Cram.) from Montreal, Can.

L. A. DODGE (Amer. Nat. vii, 213) gives an account of the habits of *Anomis xyliua* in South Carolina.

N. COLEMAN (Amer. Nat. vii, 372) gives some new facts regarding the habits of the cut worm.

T. GLOVER (Rep. Dep. Agric., 497) remarks on the injury done by *Anomis xyliua*.

A. FITCH, Twelfth Ann. Rep. Ins. N. Y. (N. Y. State Agricultural Society, 900, 1868) describes the habits and larva of *Alaria Florida* Guen., and describes as new *A. volupta* from Indian Terr.

PHALÆNIDÆ.

P. C. ZELLER (Abhand. K. K. Zool. Bot., Gesellschaft, Vienna, 1872, 477) redescribes *Acidalia purata* Guen., Texas, and describes as new *A. ferruminaria*, *Euchrostis phyllinaria*, *Nemoria oporaria* New England, *Epione mollicularia*, *Macaria consimilata*, Mass., *M. galbineata*, Mass., *M. succosata*, Mass., and redescribes *M. ocellinata* and *M. æmulataria* Walk., *Fidonia halesaria* (= *F. fimetaria* Grote), *Sudariophora* (nov. gen.) *nasutaria* (Tab. ii, fig. 11), *Boarmia psilo-grammaria*, *Cidaria bistrisolata*; notices *Cidaria designata* Bkh. (*Coremia propugnata* Guen.) and *Cidaria* (Camptogramma) *fluviata* (Hbn.), *C. ferrugata* (Linn.) and describes as new *C. parinotata*, all the species from Texas unless some other locality is given. The same for 1873, p. 5, *C. luscinata*, n. sp. Mass. and Texas.

A. R. GROTE (Bull. Buf. Soc. Nat. Sc. i, 12) describes as new *Phasiane mellistrigata*, N. Y., and *Mellilla* (nov. gen.) *chamæchryaria*

(Pl. i, fig. 1 ♂), N. Y. On p. 156 remarks on the synonymy of certain species of this family.

A. R. GROTE (Can. Ent. v, 145) states that as Hübner has once used *Eugonia* for the butterflies, it cannot again be used for Phalænidæ, and proposes for *Eugonia Coloradaria* and the European *E. angularia* the generic term *Eriplatymetia*.

P. C. ZELLER (Ent. Zeitung, Stettin, 124) speaks of receiving a male of *Cheimatobia brumata* Linn., from Dr. Packard, under the name of *Anisopteryx remota*.*

B. P. MANN (Proc. B. S. Nat. H. xv, 381) endeavors to prove the specific distinction of *Anisopteryx pometaria* Harr., from *A. vernata* Pack.

W. SAUNDERS (Rep. Ent. Soc., Can., 22) refers to *Angerona crocatoria* Guen.

E. B. REED (Rep. Ent. Soc., Can., 43) quotes Saunders' account of *Stegania pustularia* Guen.

A. S. PACKARD, Jr. (Fifth Rep. Peab. Acad. Sc., 52) describes as new *Carsia alpinata*, *C. boreata*, *Cidaria disjunctaria*, *C. triangulata*, *C. montanata*, White Mts., N. H., *C. (Thera) contractata*, *Lobophora viridata*, Maine, *Eupithecia vernata*, Maine, Mass., N. Y., *E. geminata*, Maine, Mass., *E. palpata*, Maine, N. Y., *E. interrupto-fasciata*, Mass., N. Y., Texas, *E. Strattonata*, Mass., *Scotosia albosignata*, N. Car., Geo., Ala., Texas, *Pachynemia psi*, Mass., *Aspilates pervaria*, Texas, *Aspilates 4-fasciaria*, Kansas, *Macaria S-signata*, *M. punctolineata*, *M. pallidata*, Texas, *M. multilineata*, Mass., *M. duplicata*, Maine, Mass., N. Y., Ill., Ala. (= *M. ocellinata*, Guen.), *M. minorata*, Mass., *Eumacaria brunneata*, Maine, Mass., N. Y., Texas, *Corycia biseriata*, *Gonicidalia* (gen. nov.) *furciferata*, *Euacidalia* (gen. nov.) *sericearia*, *Acidalia peralbata*, *A. puncto-fimbriata*, *A. longipennata*, *A. perirrorata*, all from Texas, *A. candidata*, Georgia, *Euephyra* (gen. nov.) *serrulata*, Texas, *Aplodes approximaria*, N. Y., *A. rubrolinearia*, Penn., *A. latia-ria*, N. Y., *Synchlora albolineata*, Maine, Mass., *S. rubifrontaria*, N. Y., *S. excurvaria*, Texas, *Racheospila rubrifrontaria*, Mass., *Eunemoria* (gen. nov.) *gracilaria*, Mass., *Eupistheria sulphurea*, Mass., *E. ferruginaria*, Maine, *Cleora pellucidaria*, Maine, N. Y., *Hesperumia* (gen. nov.) *sulphuraria*, *Heterolocha sulphuraria*, N. Y., Middle States, *Caberodes carnaria*, Mich., *C. cervinaria*, Texas.

————— (Fifth Rep. P. A. S., 82) gives a number of synonymical notes on this family.

A. FITCH (Fourteenth Ann. Rep. Ins., N. Y., 1872, 355) gives an account of the larva and habits of *Scotosia undulata* (Linn.).

* *Remota* should read *vernata*. By a mistake the *Cheimatobia* was labelled *A. vernata*. — A. S. P.

PYRALIDÆ.

P. C. ZELLER (Abhand. K. K. Zool. bot. Gesellschaft, Vienna, 1872, 447) refers *Brachytania malana* Fitch to *Nola*, and describes as new *Nola nigrofasciata* (Tab. ii, fig. 1) Mass., *N. minuscula*, *N. melanopa* (Tab. ii, fig. 2), *Thalpochares mundula* (Tab. ii, fig. 4), *Agrophila tortricina* (Tab. ii, fig. 5), *Colobochila saligna*, *Hypena albisignalis*, *H. laciniosa* (Tab. ii, fig. 8) Mass., *H. pallialis* (Tab. ii, fig. 9) Texas and Mass., *H. achatinalis* (Tab. ii, fig. 7), *H. trituberālis* (Tab. ii, fig. 6), *Epizeuxis phæalis* (Guen.) Texas and Mass.; remarks on *E. Americanalis*, N. Y. and Mass. (Guen.), *E. æmula* Hübn., Mass. and N. Y., *Zanclognatha pedipilalis*, Texas, *Z. lituralis* Hübn., N. Y., Mass., and describes as new *Z. deceptricalis*, Ohio, and *Coptocnemia* (nov. gen.) *floccalis* (Tab. ii, fig. 10 a, 10 b), *Aglossa cuprina*; notices *A. fimbrialis* (S. V.), *A. olinalis* Guen.; describes as new *A. himonialis* Mass., *A. binodulalis*, *Sedenia* (Cavifrons) *biundulalis*; remarks on *Botis octomaculata* (Linn.), *B. laticlavia* Grote, Texas, *B. cinerosa* Grote, Texas, *B. signatalis* Walk., Texas, *B. marculenta* Grote, Texas, *B. citrina* Grote, Texas, *B. ventralis* Grote, Texas, and describes as new *B. tithonialis* (Tab. iii, fig. 15), *B. fracturalis* (Tab. iii, fig. 16); records from Texas *B. rubigalis* Guen.; remarks on *B. subjectalis* Led., records from Texas *B. adipaloides* Grote, remarks on *B. flavidalis* Guen., and records *B. oxydalis* from Georgia and Rio Janeiro, redescribes *B. thesealis* Led., Texas and Mass., describes as new *Eurycreon* (Spilodes) *cereralis*, and records *E. rantalis* from Texas, Buenos Ayres and Cal., *E. crinitalis* Led., from Texas, *Mesographe stramentalis* Hübn., Maine, Mass. and N. Y., *Crocidophora tuberculalis* Led. from Tennessee and Texas; describes as new *Crocidophora serratissimalis*, Mass. and Texas, records *Blepharomastix ranalis* Guen. from Ohio and Texas, notices *Homophysa glaphyralis* Guen.? Led., records *H. sesquistrials* (Hüb.?) Led. from Texas; describes as new *H. lentiflualis*, *H. reniculalis*, *Chalcoëla* (nov. gen.) *aurifera* (Tab. ii, fig. 12 a, b), *Dicymolomia* (nov. gen.) *decora* (Tab. ii, fig. 13 a, b, c), *Scirpophaga vestaliella*; he remarks at length on *Schænobius longirostrellus* Clem., and believes that Robinson's species *S. melinellus*, *Clemensellus* (!) *dispersellus*, *unipunctellus* and *tripunctellus*, are all ♀ *S. longirostrellus*; he records *Crambus praefectellus* Zinck., from Mass., N. Y. and Texas; *C. Leachelus* Zinck., from Ill., Penn., Georgia, Texas and Venezuela; *C. puchellus* from Mass., and describes as new *C. bidens* (Taf. iii, fig. 17) Mass., *C. floridus*, Mass.; records *C. agitatellus* Clem. from Mass., N. Y. and Texas, *C. laqueatellus* Clem. from Mass., Ill. and Texas, *C. decorellus* (= *C. polyactinellus* Köllar) from Mass. and Texas, *C. terrellus* Zinck., Texas, *C. elegans* Clem., N. Y., Maryland and Texas, *C. chalybirostris* Zell., Mass., N. Y. and Texas; describes as new *Catharylla contiguella*, Cuba, *C. pulchella* (Tab. iii, fig. 18) Mass., Texas, *C. rufisignella* Texas,

and records *C. nummulalis* Zeller, from Mass., Texas, *Eromene Texana* Rob., from Texas, *Pempelia lignosella* from Carolina, Texas, Columbia, and Brazil, and describes as new *P. (?) tartarella*, *P. incantella*, records *P. petrella* Zeller from Texas; describes as new *Tetialopha melanogrammos* (Tab. iii, fig. 24 a, b), *Nephoptyx consobrinella* (Tab. iii, fig. 22) *N? basilaris* (Taf. iii, fig. 23) Mass., *Zophodia Bolli* (Taf. iii, fig. 21 a, b), *Anerastia tetradella*, *A. glareosella*, *A. binotella*, *A. hæmatica*, Mass., N. Y., records *Epischnia farrella* Curtis, from Mass., and describes as new *Galleria inimicella* (Tab. iii, fig. 20) (*Melisso-blaptès fulminalis* (Tab. iii, fig. 19), *Psecadia semilagens* (Tab. iii, fig. 25), *Encæmia* (nov. gen.) *psammitis* (Tab. iii, fig. 26 ♂), *E. crassivenella* (Tab. iii, fig. 27). All these are species from Texas unless other localities are given. In the same for 1873, p. 6, *Cordylopeza* (nov. gen.) *nigrinodis* Mass. (Taf. iii, fig. 3, a-e), *Botis rubicalis* (Tab. iii, fig. 4), *B. sesquialteralis* (Taf. iii, fig. 5), *B. nasonialis* (Taf. iii, fig. 6), notices *B. terrealis* as occurring in N. Y., and *Aphomia sociella* Linn. in Mass., and describes as new *Melisso-blaptès furellus*, Albany, N. Y., the others from Texas, unless otherwise stated.

A. R. GROTE (Bull. Buff. Soc. Nat. Sc. i, 13) describes as new *Lomanaltes* (nov. gen.) *laetulus* (Pl. 1, fig. 12 ♂) N. Y., Penn.

——— (Bull. Buff. Soc. Nat. Sc. i, 37) divides the genus *Hypena* into several genera; *Plathypena* for *H. scabra*, adopts (with Lederer) Hübner's genus *Bomolocha*, and proposes *Macrhypena* for *H. deceptalis*, etc., and *Euhypena* (*E. toreuta* and *E. sordidula*); restricts *Herminia* with *H. tentacularis* as the type; adopts Hübner's terms *Paracolax*, and *Macrochilo* and Lederer's *Zanclognatha* for certain species named in the essay. For Guenée's *Herminia morbidalis* he proposes the term *Chytolita*, and *Pityolita* for *Herminia pedipillalis* Guen. On p. 85 he describes as new *Litognatha* (nov. gen.) *nubili-fascia* (Pl. 2, fig. ♀ 2, 3, ♂) N. Y., Penn., *L. litophora*, N. Y., Penn., *Meghypena* (nov. gen.) *velifera* (Pl. 2, fig. 7 ♀), N. Y., *M. lentiginosa*, N. Y., *Botis badipennis*, Maine, N. H., *Eurycreon chortalis*, Mass., N. Y. On p. 160 remarks on certain species of *Hypena*. On p. 169 he proposes the name *Zelleri* for *Nolophana malana* Zeller, not Fitch sp., and notices *Colobochila interpuncta* Gr., *Sudariophora callitrichoides* Gr., *Asopia costalis* Fabr., *A. olinalis* Guen., describes as new *Pseudasopia* (nov. gen.) *squamealis* N. Y., *Botis gentilis*, *B. magistrallis*, Mass., *B. subdentalis* N. Y.; on p. 175 describes as new *Argyrophyes* (nov. gen.) *cilicoides*, N. Jersey, *Condylolomia* (nov. gen.) *participialis*, Penn., *Deuterollyta borealis*, Mass.

——— (Can. Ent. v, 225) describes as new *Bomolocha scutellaris* Quebec, N. Y., with a list of the species of this genus; *Sisyrrhypena pupillaris* Penn. and Texas.

C. J. S. BETHUNE (Rep. Ent. Soc., Ont., Can., 30) gives a popular account of the habits of *Hypena humuli* Harr.

J. A. LINTNER (Can. Ent., 81) shows that *Hypena erectalis* Guen., is the ♀ of *H. scabra* (Fabr.).

A. S. PACKARD, Jr. (Ann. Lyc., N. Y., x, 259) describes as new *Pempelia fenestrella*, *P. leoninella*, *Scopula occidentalis*, *Botis Californicalis*, *B. unifascialis*, *B. profundalis*, *B. mustelinalis*, *B. semirubralis*, *B. perrubralis*, *Eromene Californicalis*, *Cataclysta metalliferalis*, from California, *Botis subolivalis* from Maine, redescribes *B. fodinalis* Lederer, from California, and records *Nomophila noctuella* (Schiff.) and *Pyralis farinalis* Linn., from Oregon and Cal.

————— (Ann. Lyc., N. Y., x, 267) describes as new *Acrobasis rubrifasciella*, reared by Mr. Emerton from *Comiptonia asplenifolia*, Maine, Mass., *Myelois albiplagiata*, N. H., *Pempelia ovalis*, Maine, *Nephoteryx latifasciatella*, Maine, *N. roseatella*, Mass. On p. 271 refers (with Staudinger and Mœschler) *Scopula gracialis* Pack., to *Botis inquinitalis* Zell., and refers *Eudorea? frigidella* to *Pempelia fusca* Haw.

TORTRICIDÆ.

A. R. GROTE (Bull. Buff. Soc. Nat. Sc., i, 15) describes as new *Tortrix Georgiana* (Pl. i, fig. 4), Penn., *T. Houstonana* (Pl. 1, fig. 5) Texas, and *Conchylis straminoides*, N. Y., p. 90, *Phæcasiophora* (nov. gen.) for *Sericoris mutabilana* Clem., *P? niveiguttana* (Pl. 2, fig. 15 ♀), *Penthina Blakeana* Rob. (Pl. 2, fig. 8), *Penthina matutina* (Pl. 2, fig. 9), *P. toreuta* (Pl. 2, fig. 10 ♂), Penn., *Grapholitha distema*, N. Y., Penn.

C. V. RILEY (5th Ann. Rep. Missouri) gives an account of the habits of *Carpocapsa pomonella*.

W. SAUNDERS (Rep. Ent. Soc., Ont., Can., 19) condenses Riley's account of *Anchylopera fragariæ* Riley, and refers to *Lozotania fragariana* Pack., and *L. rosaceana* Harr.

TINEIDÆ.

P. C. ZELLER (Abhand. K. K. Zool. Bot. Ges. Wien., 1873, 14) describes as new *Anaphora scardina* (= ? *Popeanella* Clem.), *A. bombycina* Mass. and Buenos Ayres, *Xylesthia congeminatella?* Mass., redescribes or refers to *Amydria effrenatella* Clem., Mass., *Tinea (Blabophanes) dorsistrigella* Clem., Mass., *Tinea (Blabophanes) rusticella* St., Mass., describes as new *Tinea defectella* (Taf. iii, fig. 8) California, *T. grumella* (Taf. iii, fig. 9), Mass., notices *T. spretella* S.V., *Tinea misella* Zeller, *T. (Tineola) biselliella* Humm, *Setomorpha operosella* (no locality given), *S. inamænella* (no loc.), *S. ruderella* (no loc.), *Adelachalybëis*, *A. bivirella* (Taf. iii, fig. 10), Mass., *A. Schlægeri* (Taf. iii,

fig. 11), Ohio, remarks on *Hyponomeuta multipunctellus* Clem., Ohio and Ill., and refers (*Eta punctella* (*Eta compta*)) to the neighborhood of *Hyponomeuta*. Describes as new, or refers if previously known, to *Tegeticula* (nov. gen.) *alba*, *Plutella cruciferarum*, Ohio, Texas, *Depressaria atrodorsella* Clem., Mass., *D. hilarella* [= *D. robiniella* Pack.] Mass., *D. heracliana* DeG. (= *D. Ontariella* Bethune), New York, *D. scabella*, Ohio, *D. nebulosa*, Mass., *Cryptolechia tentoriferella* (Clem.), Mass., N. Y., *C. piperatella*, *C. quercicella* (Clem.), Ohio, Texas, *C. obsoletella*, Ohio, *C. ferruginosa*, Ohio, *C. cretacea*, *C. lithosina*, *C. nubeculosa* (Taf. iii, fig. 12) *C. Schlägeri* Zell., *C. vestalis*, *Epicorthylis inversella* (Taf. iii, fig. 13, a, b), *Gelechia* (*Tachyptilia*) *innocuella*, *G. consonella*, Missouri and Texas, *G. cæcella*, Mass., *G. versutella*, *G. Lynceella*, *G. nundinella*, *G. unctulella*, *G. violaceo-fusca*, *G. Olympiadella* (fig. 15), *G. quinella* (fig. 14), *G. albilarella* (fig. 16), *G.* (? *Bryotropha*) *operculella* (fig. 17), *G.* (? *Lita*) *ternariella*, *G.* (*Lita*) *liturosella*, *G.* (*Teleia*) *sequax* Haw., Mass., *G.* (*Teleia*?) *gilviscopella*, *G.* (*Teleia*) *dorsivittella* (Taf. iii, fig. 20), *G.* (*Teleia*?) *leuconota* (Taf. iii, fig. 21) *G.* (*Pæcilia*?) *basifasciella* (Taf. iii, fig. 22), *G.* (*Pæcilia*?) *basistrigella* (Taf. iv, fig. 23) *G.* (*Pæcilia*?) *fragmentella*, *G.* (*Ergatis*) *roseosuffusella*, Mass., Ohio, Wash., D. C., Clem. (Taf. iv, fig. 24), *G.* (*Ergatis*) *pudibundella*, Mass., Texas, *G.* (*Anacamptis*) *agrimoniella* Clem., Georgia, *G.* (*Anacamptis*) *glandiferella* (Taf. iv, fig. 25), *G.* (*Ceratophora*?) *fullonella*, *G.* (*Doryphora*) *piscipellis*, *G.* (*Trichotaphe*) *flavocostella* Clem. (fig. 26), Mass., *G.* (*Trichotaphe*) *ochripalpella* Zell., *G.* (*Trichotaphe*?) *serrativittella* (fig. 27), *G.* (*Malacotricha* Zell.) *bilobella* (fig. 28) Ohio, Wash., D. C., *Enchrysa dissectella* (fig. 29, a, b), Ohio, *Ypsolophus pauciguttellus* Clem., Ohio, Texas, *Y. punctidiscellus* Clem., Ohio, N. Y., *Y. unicipunctellus* Clem., Ohio, Missouri, Texas, *Nothris dollabella* (fig. 30), *Dasycera Newmanella* Clem., Ohio, *Æcophora determinatella* (fig. 31) *Æ. Borkhausenii* Zell., Wash., D. C., *Æ. constrictella* (fig. 32), *Butalis trivinctella* (fig. 33, a, b), *B. pilosella*, Mass., *B. eboracensis* Zell., N. Y., Texas, *Blastobasis sciaphilella* (fig. 34), *B. nubilella*, *B. fractilinea* (fig. 37), *B. quisquiliella*, *B. livorella*, *B?* *aufugella*, *B?* *fluxella*, *Hypatima subsenella*, *H. confectella* n. sp.?, *Argyresthia Andereggiella* F. R., Ohio, *A. quadristrigella*, *A. austerella* (fig. 38) *A. abdominalis* Zell., *Gracilaria falconipennella* Hübn., *G. desmodifoliella* Clem. (fig. 40), *G. atomosella*, *Coleophora* n. sp. *occidentis?* an *nigriceella* Haw., Mass., *C. Fabriciella* Vill., N. Y., Mass., *Laverna definitella* (fig. 41), *L. circumscriptella* (fig. 42), *Batrachedra striolata*, *Heliozela gracilis*, *Phyllocnistis vitigenella* Clem., Mass., *P. magnatella* (fig. 43) Mass., *Trifurcula obratella*; all from Texas unless otherwise stated.

A. R. GROTE (Bull. Buff. Soc. Nat. Sc., i, 93) describes as new *Æta gemmata*. On p. 174 he remarks on *Anaphora agrotipennella* Grote.

H. FREY and J. BOLL (Ent. Zeitung, Stettin, 201) redescribes *Gracilaria superbifrontella* Clem., probably reared from oak, *Lithocolletis alniella* Z. on alder, *L. argentinotella* Clem. (*ulmella* Chamb.) lives on *Ulmus fulva* and *Americana*, *L. trifasciella* Harr., Mass., on *Lonicera sempervirens*, *L. ornatella* Chamb., on *Robinia*, *Fischeria Zellerella* Clem., lives on *Q. tinctoria*, *T. quercitella* Clem., on *Q. tinctoria*, *T. malifoliella* Clem., mines *Pyrus Malus*. He describes as new *Gracilaria elegantella*, *G. mitabilis*, *G. astericola*, on *Aster cordifolius* and *corymbosus*, *Coriscium paradoxum*, *Lithocolletis quercetorum*, Mass. and Texas, on *Quercus prinus* and *Q. castanea*, *L. Hagenii* n. sp.? on *Q. prinus* and *Q. castanea*, no locality, *L. longestriata*, *L. intermedia*, on *Q. alba* and *tinctoria*, *L. obsoleta*, *L. mirifica*, n. sp.? *L. Scudderella*, on *Salix*, *L. consimilella*, *L. ignota*, *L. Bostonica*, *L. auronitens*, mines *Alnus serratula*, *L. gemmea* n. sp.? (*Parectopa robiniella* Clem.?) on *Robinia pseudacacia*, Mass., *L. ænigmatella*, *Tischeria ænea*, mines *Rubus villosus*, *T. roseticola*, Mass., mines *Rosa Carolina*.

C. V. RILEY (Trans. Acad. Sc., St. Louis, iii, 55, 178 and 5th Ann. Rep., Missouri, 150, and Amer. Nat., vii, 619) gives an account of the habits and transformations of *Pronuba* (nov. gen.) *yuccasella*, n. sp., Missouri, N. Y.

W. SAUNDERS (Rep. Ent. Soc., Ont., Can., 15) describes the transformations of *Anarsia lineatella* Zell. (= *A. pruniella* Clem.)

E. B. REED (Rep. Ent. Soc., Ont., Can., 42) gives a popular account of *Ornix acerifoliella* Fitch.

V. T. CHAMBERS (Can. Ent., v, 12) describes *Anesychia trifurcella* n. sp., Kentucky, *Hyponomeuta orbimaculella* proposed for *H. evonymella* (Vol. iv, p. 42), *Argiope* (nov. gen.) *dorsimacullella* for *Heribeia? incertella* (Vol. iv, p. 44, see also p. 174), *Gracilaria juglandivorella* n. sp., unless = *G. blandella* Clem., Ky., mining black walnut. On p. 44 redescribes *G. eupatoriella* with full biological comparative notes, *Ornix inusitatumella* n. sp.? mines the haw, Ky., *O. prunivorella* n. sp., mines apple and wild cherry, Ky. On p. 72 he substitutes *Eido*, for *Venillia albatpella* and *Psoricoptera gibbosella* Staint. for *Adras-teia quercifoliella* Chamb. (see also p. 174), *Adela bella* n. sp., Ky., *Dicte* (nov. gen.) *corruscifasciella* n. sp.; on p. 74 gives an account of the habits of *Solenobia Walshella* Clem.? which feeds on lichens. On p. 85 he describes as new *Tinea cæmeteriella*, Ky. and Gulf States; *T. Orleansella*, Louisiana, *T. auristrigella*, *T. staminiella*, Ky., *T. iridella*, Canada, *T. misciella*, *T. costotristrigella*, *T. bimaculella*, *T. aurosuffusella*, *T. griseella*, *T. marginistrigella*, *T. trimaculella*, *T. fuscomacuella*, *T. argenti-strigella*, *T. auropulvella*, *T. fuscopulvella*, *T. maculabella*, *Pitys auricristalella*, *P. fusco-cristalella*, *P. fasciella*, *P. misce-cristalella*, *Cyane* (nov. gen.) *visaliella*, *Clymene ægerfasciella*, *Cyllene* (nov. gen.) *minutissimella*, *Nepticula Clemensella*, mining Pla-

tanus occidentalis, *N. maximella*, mines *Platanus occidentalis*, *N. serotinæella*, mines *Prunus serotina*, *N. apicialbella*, *N. minimella*, *N. thorace-albella*, *N. querci-castanella*, mines *Quercus castanea*, *N. fusco-capitella*, *N. ochre-fasciella*, *N. ciliæ-fuscella*. On p. 147 he thinks on reëxamination that *Clymene ægerfasciella* and *Cyllene minutissimella* are allied to the *Hydroptilidæ*, and are Trichopterous, if *Hydroptila* is Trichopterous. He gives a synopsis of the N. A. species of *Bucculatrix* and describes as new *B. capitealbella*, *B. obscurafasciella*, *B. luteella* and *B. Packardella*, Kentucky. On p. 173, *Xylesthia Clemensella*, *Gelechia scutellariæella*, *G. ? unistrigella*; on p. 176 he changes the name *G. similiella* (Vol. v, p. 193) to *G. solaniella*. On p. 185, *Erippe* (gen. nov.) *prunifoliella*, *Eidothea vagaticella*, *Helice* (gen. nov.) *pallidochiella* *Æcophora? boreasella*. On p. 229, after remarks on certain genera allied to *Gelechia*, he describes as new *Sinoë* (gen. nov.) *fusco-pallidella*; and suggests *Taygete* (gen. nov.) for *Gelechia difficillisella* Chamb. from Kentucky.

————— (Amer. Nat., vii, 47) notices the genus *Cemiostoma*.

J. A. LINTNER (Can. Ent., 82) states that on the authority of Zeller *Depressaria Ontariella* Bethune = *D. heracliana* DeG.

PTEROPHORIDÆ.

P. C. ZELLER (Abhand. K. K. Zool. Bot. Ges. Wien, 117) enumerates all the species known in America, with lengthy descriptive and synonymical remarks and describes as new *Oxyptilus Delawaricus*, Delaware river, *O. nigroceliatus*, Delaware river, *Mimeseoptilus semicostatus*, Texas, *M. pumilo*, Texas, *Ædematophorus inquinatus*, Texas, *Leioptilus paleaceus*, Ohio, Texas, *Scoptonoma* (nov. gen.) *integra* (fig. 44), Texas, *S. interrupta* Texas. He records *Platyptilia Bischoffi* Zell. from Ohio and Mass., *P. cardui* Zell. (*Pterophorus carduidactylus* Riley) from Texas, *Oxyptilus periscelidactylus* (Fitch), from N. Y., Missouri, and Texas, and *Pterophorus monodactylus* Linn., from Ohio and Texas. He refers *Pt. tenuidactylus* Fitch, and *lobidactylus* to *Oxyptilus*.

V. T. CHAMBERS (Can. Ent., v, 72) describes as new *Pterophorus lacteodactylus*, Ky.

W. SAUNDERS (Can. Ent., v, 99) gives a popular sketch of *Pterophorus periscelidactylus*.

A. S. PACKARD, Jr. (Ann. Lyc. N. Y., x, 265) describes as new from California, *Pterophorus pergracilidactylus* [= *Pt. cinereidactylus* Fitch], *Pt. sulphureodactylus* and *Pt. cervinidactylus*.

DIPTERA.

I. PORTSCHINSKY (Horæ Soc. Entom. Rossicæ, viii, 287-Nov., 1872). Notice Géographique sur *Diopis brevicornis* Say. Notes the occurrence of this fly at Vladivostok (Asiatic Russia).

C. V. RILEY (Fifth Annual Report on the Insects of Missouri, pp. 114-119), describes the galls of four species of Cecidomyidæ, one of which is the *Lasioptera vitis* O. S. (Ibid. p. 140), describes and figures *Tachina (Belovisia) bifasciata* Fabr., bred from *Anisota rubicunda*.

A. S. PACKARD, Jr. (Hayden's Sixth Report of the U. S. Geol. Survey of the Territories, p. 739), describes a larva, seemingly allied to those of the Cecidomyidæ, taken from the gizzard of *Picoides arcticus*. (Ibid. p. 743), makes some general remarks on brine-dwelling insects, including Diptera.

ADDITIONS and corrections to the notice on the progress of American Dipterology, contained in the Annual Report of the Peabody Academy for 1871, by Dr. Loew.

Page 120, line 14 from top, for *Elaphyoptera*, read *Glaphyoptera*; line 16 from top, for *Rymnosia*, read *Rymosia*; line 18 from top, insert the names of the thirteen Mycetophilæ, *bipunctata*, *extincta*, *fallax*, *inculta*, *monochalta*, *mutica*, *pinguis*, *polita*, *procera*, *quatuornotata*, *scalaris*, *sigmoides*, *trichonota*; line 23 from bottom, for *Dilopus*, read *Dilophus*.

Page 121, line 18 and 19 from top. Strike out *Phiolina* (should be *Ptiolina*) *fasciata* and *majuscula*; line 12 from bottom, for Stett., read Berl.; line 3 from bottom, for *Argyromæba*, read *Argyramæba*.

Page 122, line 24 from bottom. Strike out *Empis superba*, which is a species published previously; line 2 from bottom, for *Archippizoza*, read *Archippivora*.

Page 123, line 13 from top, strike out *Hydrophorus æstum*; line 17 from bottom, for *nemōsa*, read *nervosa*.

In quoting Mr. Van der Wulp's species, the year 1869 should, almost in all cases, be changed to 1867, as all these species were published in

the latter year, with the exception of *Bibio senilis*, *Machimus avidus*, *Stilpnogastes anceps*, *Stenopogon ochraceus*, *Aricia proxima* and *Cœnosia incisurata*.

In Giebel's Zeitscht. für die Gesammten Naturwissenschaften, Vol. xxxvi, 1870, I published a small article, which does not seem to have been known to the author of the REPORT. It contains some remarks on the N. A. Diptera, published by Mr. Van der Wulp, in 1867, and among these remarks the following would perhaps be worth including in the above mentioned REPORT (H. Loew).

1. *Glaphyroptera lateralis* V. d. W. = *Leja bivittata* Say.
2. *Subula tenthredinoides* V. d. W. = *Xylophagus Americanus* Wied., of which it is a dark variety.
3. *Sargus marginatus* V. d. W. probably = *Sargus decorus* Say.
4. *Dasypogon laticeps* V. d. W., is a *Discocephala* and was previously described by Say as *Dasypogon abdominalis*, by Macquart as *Discocephala rufiventris*, by Walker as *Dasypogon Aeta*.
5. *Leptogaster flavicornis* V. d. W., apparently = *L. flavipes* Low.
6. *Syneches punctipennis* V. d. W. = *Syneches simplex* Walk., pale colored specimen.
7. *Mulio Americanus* V. d. W. = *Exoprosopa fasciata* Macq., and is no *Mulio* at all.
8. *Leptis griseola* V. d. W. = *L. plumbea* Say.
9. *Chrysopila dispar* V. d. W. = *Chr. (Leptis) quadrata* Say.
10. *Syrphus signatus* V. d. W. = *S. obliquus* Say.
11. *Schineria ruficauda* V. d. W., does not belong to this genus, and must be placed in *Cyphocera*, unless a new genus is established for it. From the typical *Cyphocera*, which have only rudimentary palpi, it differs in their total absence.
12. *Cordylua maculipennis* V. d. W. = *C. bimaculata* Lw.
13. *Herina metallica* V. d. W. = *Rivellia flavimana* Lw., which I formerly took for a variety of *R. viridulans* R. Desvoidy. It is not a *Herina*.
14. *Trypeta (Aciura) ænea* V. d. W. = *Chatopsis (Ortalis) ænea* Wied., and probably = *Ortalis trifasciata* Say. It is neither an *Aciura*, nor does it even belong to the *Trypetidæ*.
15. *Trypeta (Tephritis) cribrata* V. d. W. = *Trypeta latifrons* Lw.
16. *Sapromyza plumata* V. d. W. = *Chlorops antennalis* Fitch., which is no *Chlorops*, but a *Sapromyza*.

COLEOPTERA.

S. V. SUMMERS (Can. Ent. v, p. 61). Notes on *Casnonia Ludoviciana* Sallé.

————— (Can. Ent., 132, 145, 168, 190). List of the Coleoptera of St. Louis Co., Mo.

C. J. S. BETHUNE (Can. Ent. v, 96, 115, 129, 193, 210). Reprint of Kirby's Fauna Boreali-Americana, Insecta.

W. SAUNDERS (Can. Ent. v, 171). On some of our common insects. Figures the larva and imago of *Dermostes lardarius* Linn.

C. V. RILEY, Fifth Annual Report on the Noxious, Beneficial and other insects of Missouri.

BARON M. DE CHAUDOIR (Berlin Entomologische Zeitschrift). Essai monographique sur le genre *Cymindis*.

G. R. CROTCH (Proc. Acad. Nat. Sci., 19). Materials for the study of the Phytophaga of the United States.

————— (Proc. Acad. Nat. Sci., 84). Notes on the species of Buprestidæ found in the United States.

————— (Proc. Am. Phil. Soc., 74). On the arrangement of the Families of Coleoptera.

This paper shows the arrangement of the Families in accordance with the more recent views on the subject.

————— (Trans. Amer. Ent. Soc., 349). Synopsis of the Erotylidæ of Boreal America.

————— (Trans. Amer. Ent. Soc., 359). Synopsis of the Endomychidæ of the United States.

————— (Trans. Amer. Ent. Soc., 363). Revision of the Coccinellidæ of the United States.

————— (Trans. Amer. Ent. Soc., 383). Revision of the Dytiscidæ of the United States.

J. L. LECONTE (Proc. Acad. Nat. Sci., 302). The Pterostichi of the United States.

J. L. LECONTE (Proc. Acad. Nat. Sci., 321). Synonymical remarks upon North American Coleoptera.

This contribution contains many changes in synonymy made necessary by personal observation of types in European cabinets. These corrections cannot be noticed in this Record as it would involve a reprint of the entire paper.

————— (Smith. Misc. Coll., No. 265). Classification of the Coleoptera of North America, Part ii, pp. 279–348.

————— (Smith. Misc. Coll., No. 264). Descriptions of New Species and genera, pp. 169–250.

G. H. HORN (Proc. Am. Phil. Soc., 88). Revision of the species of several genera of Meloidæ.

————— (Proc. Amer. Phil. Soc., 118). Revision of the Genera and species of the tribe Hydrobiini of the United States.

————— (Proc. Amer. Phil. Soc., 273). Synopsis of the Histeridæ of the United States.

————— (Proc. Amer. Phil. Soc., 407). Contributions to a knowledge of the Curculionidæ of the United States.

————— (Trans. Am. Ent. Soc., 1873, 311). Revision of the Bruchidæ of the United States.

A. S. PACKARD Jr. 3rd Ann. Rep. Inj. Ins., Mass. and American Naturalist, vii, 524.

VICTOR MOTSCHOUJSKY. Enumeration of new species collected in his journeys. (Bull. Mosc., 1873, pt. 2, pp. 467, et seq.)

CICINDELIDÆ.

J. L. LECONTE (Proc. Acad., 321). *C. Magdalenæ*, N. Car.; *C. pamphila*, Texas.

CARABIDÆ.

J. L. LECONTE (Proc. Acad., 321–325). Synonymical notes, principally on Kirbyan species; p. 311, *Pterostichus crenicollis*, n. sp., Van-

couver, *P. tarsalis*, n. sp., Cal.; p. 312, *P. longulus*, n. sp., Colorado, *P. scutelleris*, n. sp., Cal.; p. 313, *P. Spraguei* n. sp., Nevada, *P. Hornii*, n. sp. Cal.; p. 314, *P. obesulus*, n. sp., Georgia, *P. pennsylvanicus*, n. sp., Penn.; *P. corrusculus*, n. sp., Mass; p. 316, *Lophoglossus gravis*, n. sp., Penn; p. 319, *Evarthrus Sallei*, n. sp., Texas; p. 320, *E. nonnitens*, n. sp., Louisiana.

M. DE CHAUDOIR (Berlin Zeitschrift, 53-120) 96, *Cymindis villigera*, n. sp. Texas.

DYTISCIDÆ.

G. R. CROTCH (Trans. Am. Ent. Soc., p. 383-424) 383, *Brychius Hornii*, n. sp. Cal; 385, *Haliphus longulus*, n. sp. Lake Sup.; 387, *Hydrovatus Hornii*, n. sp., Texas; 388, *Hydroporus dispersus*, n. sp. Lower Cal., *H. plicipennis*, n. sp. Cal.; 391, *H. fuscatus*, n. sp. Atlantic region; 392, *H. funereus*, n. sp. Cal.; 393, *H. addendus*, n. sp. Lower Cal.; p. 395 *H. persimilis*, n. sp. Canada; 397, *Suphis puncticollis*, n. sp. Gulf States; *Agabinus* (gen. nov.) *glabrellus* Motsch=*morulus* Lec. 400, *Laccophilus atristernalis*, n. sp. Cal; 401, *Agabetes* (gen. nov.); 405, *Scutopterus Hornii*=*coraceus* Horn, Canada; 409, *Rhantus anisonychus*, n. sp. *Rh. flavogriseus*, n. sp. Western States; 411, *Ilybius suffusus*, n. sp. Ind. Terr., *H. viridiæneus*, n. sp. Ks; 413, *Ilybiosoma* (gen. nov.); 416, *Gaurodytes disintegratus*, n. sp. Pa. to Ariz.; p. 417, *G. aeneolus*, n. sp. Penn.; 418, *G. ovoideus*, n. sp. Ks.; 419, *G. lutosus*, n. sp. Ks.; *G. Walsinghamsi*, n. sp. Oregon; *G. intersectus*, n. sp. Cal.; 422, *G. inscriptus*, n. sp. Labr.; *G. strigulosus*, n. sp. Cal.; 423, *G. suturalis*, n. sp. Nev.

HYDROPHILIDÆ.

GEO. H. HORN (Proc. Am. Phil. Soc. 118-137) 120, *Berosus emarginatus*, n. sp. Texas; 121, *B. styliferus*, n. sp. Col.; 124, *B. rugulosus*, n. sp. Lower Cal.; 127, *Philhydrus fucatus*, n. sp. Utah, Ariz.; 131, *P. punctatostriatus*, n. sp. Cal.; 133, *Hydrobius scabrosus*, n. sp., *latus*, n. sp. Cal. Or.; 135, *H. rufiventris*, n. sp. Or.; 136, *H. dissimilis*, n. sp. Cal.; 137, *Helopeltis* (gen. nov.) *larvalis*, n. sp. Louisiana, Sonora, Cuba.

ENDOMYCHIDÆ.

G. R. CROTCH (Trans. Am. Ent. Soc., 359-362) 360, *Mycetina Hornii*, n. sp. Oregon; 362, *Alexia Ulkei*, n. sp. *A. minor*, n. sp. Dist. Col.

TRITOMIDÆ.

MYCETOPHAGIDÆ.

————— (Trans. Am. Ent. Soc., 363) *Myrmecoxenus latridioides*, n. sp.

EROTYLIDÆ.

G. R. CROTCH (Trans. Am. Ent. Soc., 349-358) 351, *Languria Lecontei*, n. sp. Illinois; p. 352, *Megalodacne* (gen. nov.); 353, *M. Ulkei*, n. sp. Kentucky; 354, *Ischyryus nigrans*, n. sp. Florida; *I. extricatus*, n. sp., Middle States; 355, *Mycotretus dissimulator*, n. sp. Illinois; *Cyrtotriplax* (gen. nov.) *mimetica*, n. sp. Illinois; 358, *Cypherotylus* (gen. nov.).

A. S. PACKARD, Jr. (3d Ann. Rep. Ins. Mass.) describes and figures the larva and pupa of *Languria puncticollis* Say, and *Dacne heros* Say.

COCCINELLIDÆ.

G. R. CROTCH (Trans. Am. Ent. Soc., 363-382) 365, *Ceratomegilla*, (gen. nov.) *Ulkei*, n. sp. Hudson's Bay; 367, *Hippodamia oregonensis*, n. sp. Oregon; 368, *H. falcigera*, n. sp. Hudson's Bay; *H. americana*, n. sp. Hudson's Bay; 370, *Coccinella difficilis*, n. sp. Utah; 371, *C. prolongata*, n. sp.=*monticola* Lec. Utah, Cal.; *C. annectans*, n. sp. Colorado; *Cycloneda* (gen. nov.); 373, *Anisocalvia* (gen. nov.); 375, *Mysia Hornii*, n. sp. Oregon; 379, *Brachyacantha Bollii*, n. sp. Texas; *Hyperaspis dissoluta*, n. sp. Cal.; 380, *H. Lewisii*, n. sp., loc. dub.; 381, *H. Hornii*, n. sp. Cal.; 382, *Hyperaspidius* (gen. nov.) *Cephaloscymnus* (gen. nov.) *Zimmermanni*, n. sp., Southern States.

A. S. PACKARD, Jr. (3d Ann. Rep. Ins. Mass.) describes the larva and pupa (figuring the former) of *Psyllobora 20-maculata* Say.

HISTERIDÆ.

G. H. HORN (Proc. Am. Phil. Soc., 273-360) 283, *Hister lucanus*, n. sp. Lower Cal.; 295, *H. (Phelister) wneomicans*, n. sp. Dist. Col.; 297, *H. (Platysoma) aurelianus*, n. sp., La.; 299, *Tribalister* (gen. nov.); 301, *Epierus nasutus*, n. sp. Ariz.; 308, *Paromalus mimeticus*, n. sp. Ariz.; 309, *P. Tejonicus*, n. sp. Cal.; 311, *Anapleus* (gen. nov.); 315, *Saprinus Behrensii*, n. sp. Cal.; 318, *S. Floridae*, n. sp. Florida; 320, *S. Copei*, n. sp. Wyoming; 331, *S. Wacoensis*, n. sp. Texas; 347, *Teretriosoma* (gen. nov.) *chalybæum*, n. sp. Texas; 350, *Plegaderus consors*, n. sp. Col.; 353, *Acritus Arizonae*, n. sp. Ariz.; 355, *A. Sallei*, n. sp. Georgia; 356, *Aeletes* (gen. nov.).

SCARABÆIDÆ.

C. V. RILEY (5th Ann. Rep. 109) gives an account of *Macrodactylus subspinosus*.

W. SAUNDERS (Rep. Ent. Soc. Canada, p. 10) treats also of this insect, and on page 17 figures the larva and imago of *Lachnosterna quercina* Knoch.

A. S. PACKARD, Jr. (3d Ann. Rep. Ins. Mass.) gives an account of the habits of *Lachnosterna quercina*, and *Cotalpa lanigera*.

BUPRESTIDÆ.

G. R. CROTCH (Proc. Acad. Nat. Sc., 84-96) 86, *Dicerca Hornii*, n. sp. Cal.; 87, *D. sexualis*, n. sp. *D. californica*, n. sp. Cal.; 94, *Agrilus texanus*, n. sp., Tex.; *A. floridanus*, n. sp. Florida, *A. imbellis*, n. sp. Florida; 95, *A. pubiventris* Cr. = *cuneus* Lec., *A. addendus*, n. sp. Tex.; *A. Walsinghamsi*, n. sp. Oregon; 96, *Taphrocærus agriloides*, n. sp. Tex.

A. S. PACKARD, Jr. (3d Ann. Rep. Ins. Mass. 21) describes and figures the larva of *Brachys æruginosa* Gory, and *Metonius lævigatus* (Say).

CERAMBYCIDÆ.

J. L. LÉCONTE (Smithsonian Miscellaneous Contributions, 264 and 265, the former being "n. sp." the latter "Class.") *Homaesthis* (gen. nov.) Class, 288; *Asemum nitidum*, n. sp. 169, Oregon; *Criocephalus montanus*, n. sp. 170, Colorado; *Gonocallus* (gen. nov.) Class, 296, n. sp. 171; *Gracilia fasciata*, n. sp. 171, Lower Cal.; *Callidium vile*, n. sp. 172, Cal.; *C. hirtellum*, n. sp. 172, Nevada; *Xylocrius* (gen. nov.) Class, 296; *X. cribratus*, n. sp. 172, Nevada; *Ganimus* (gen. nov.) *vittatus*, n. sp. 173, Cal.; *Oeme costata*, n. sp. 174, Cal.; *Eucrossus* (gen. nov.) *villicornis*, n. sp. 174, 175, Ariz.; *Haplidus* (gen. nov.) *testaceus*, n. sp. 175, 176, Cal., Utah; *Achryson concolor*, n. sp. 176, Tex.; *Axestinus* (gen. nov.) *obscurus*, n. sp. 177, Tex.; *Osmidus* (gen. nov.) *guttatus*, n. sp. 177, 178, Lower Cal.; *Eburia perforata*, n. sp., *E. ovicollis*, n. sp. 180, Tex.; *E. tumida*, n. sp. 181, Tex.; *Elaphidion aculeatum*, n. sp. 184, Tex.; *E. punctatum*, n. sp. 185, Lower Cal.; *Aneflus* (gen. nov.) Class, 302; *A. volitans*, n. sp. 186, Lower Cal.; *A. proluxus*, n. sp. 203, Lower Cal.; *Eustroma* (gen. nov.) Class, 302; *Zamodes* (gen. nov.) *obscurus*, n. sp. 188, Penn.; *Compsa puncticollis*, n. sp. 188, *quadriplagiata*, 189, Lower Cal.; *Plectromerus* (gen. nov.) n. sp. 189; *Callimus* (gen. nov.) Class, 305; *C. chalybæus*, n. sp. 189, Cal.; *Eumichthus* (gen. nov.) *ædipus*, n. sp. 190, Vanc.; *Phyton discoideum*, n. sp. 191, Lower Cal.; *Hybodera* (gen. nov.) *tuberculata*, n. sp. 191, Cal.; *Pilema* (gen. nov.) *ruficollis*, n. sp. 191, 192, *P. cyanipenne*, n. sp. 192, Cal.; *Megobrium* (gen. nov.) n. sp. 192; *M. Edwardsii*, n. sp. 193, Cal.; *Molorchus longicollis*, n. sp. 192, Cal.; *Rhopalophorus lævicollis*, n. sp. 193, Tex.; *Holopleura* (gen. nov.) n. sp. 193; *H. marginata*, *H. Helena*, n. sp. 194, Cal.; *Callichroma cobaltinum*, n. sp. 195, Lower Cal.; *Schizax* (gen. nov.) *senex*, n. sp. 195, 196, Ariz.; *Crossidius punctatus*, n. sp. 197, Oregon; *Cyllene brevipennis*, n. sp. 196, Utah; *Glycobius* (gen. nov.) *Calloides* (gen. nov.) Class, 319; *Clytus lanifer*, n. sp. 198, Cal.; *Xylotrechus convergens*, n. sp. 198, Ohio; *X. insignis*, n. sp. 199, Cal.; *X. obliteratedus*, n. sp. 199, Col.; *Neoclytus torquatus*, n. sp. 200, Tex.; *N. balteatus*, n. sp. 201, Oregon; *N. interruptus*, n. sp. 201, Cal.; *Microclytus* (gen. nov.) Class, 320; *Euderces Reichei*, n. sp. 202, Tex.;

E. parallelus, n. sp. 202, Lower Cal.; *Zagymnus* (gen. nov.) *clerinus*, n. sp. 203-204, Florida; *Necydalis cavipennis*, n. sp. 204, Cal.; *Leptalia* (gen. nov.) n. sp. 204; *Centrodera nevadica*, n. sp. 205, Nevada; *Xylosteus ornatus*, n. sp. 205, Oregon; *Toxotus obtusus*, n. sp. 206, Wyoming; *Pachyta armata*, n. sp. 207, Oregon; *P. rugipennis*, n. sp. 207, Canada; *Anthophilax tenebrosus*, n. sp. 208, Cal.; *Acmaeops pinguis*, n. sp. 210, Cal.; *A. ligata*, n. sp. 211, Montana; *A. basalis*, n. sp. 211, Cal.; *Bellamira* (gen. nov.) Class, 328; *Strangalia virilis*, n. sp. 212, Tex.; *Typocerus brunnicornis*, n. sp. 214, Tex.; *Leptura gigas*, n. sp. 223, Tex.; *L. soror*, n. sp. 223, Cal.; *L. plagifera*, n. sp. 224, Cal.; *L. rubida*, n. sp. 524, Cal.; *L. tribalteata*, n. sp. 224, Cal.; *L. quadrata*, n. sp. 225, Saskatchewan; *L. grossa*, n. sp. 225, Cal.; *L. brevicornis*, n. sp. 226, Nevada; *L. coccinea*, n. sp. 226, Cal.; *L. hirtella*, n. sp. 226, Labrador; *L. crassicornis*, n. sp. 227, Cal.; *L. Behrensi*, n. sp. 227, Cal.; *L. gnathoides*, n. sp. 228, Oregon; *L. aspera*, n. sp. 228, Vanc.; *L. spuria*, n. sp. 228, Oregon; *Monilema gigas*, n. sp. *M. forte*, n. sp. 230, Ariz.; *M. obtusum*, n. sp. 230, Utah; *Monohammus minor*, n. sp. 231, Georgia =? *titillator* var.; *M. oregonensis*, n. sp. 230, Oregon = *scutellatus*, Say; *Lophopæum volitans*, n. sp. 232, Lower Cal.; *Leptostylus Palmeri*, n. sp. 233, Ariz.; *L. planidorsus*, n. sp. 233, Louisiana; *L. parvus*, n. sp. 234, Western States; *Sternidius* (gen. nov.) *crassulus*, n. sp. 234-235, Lower Cal.; *Eutessus* (gen. nov.)* *asper*, n. sp. 235, 236, Lower Cal.; *Eupogonius pubescens*, n. sp. 236, Ohio; *Pogonocherus crinitus*, n. sp. Cal.; *P. simplex*, n. sp. Cal.; *P.?* *sordidus*, n. sp. Lower Cal., 237; *Mecas marginella*, n. sp. 239, Tex.; *Styloxus* (gen. nov.) *lucanus*, n. sp. 239, 240, Lower Cal.; *Dysphaga lævis*, n. sp. 240, Illinois; *Methia punctata*, n. sp. 240, Santo Domingo.

BRUCHIDÆ.

G. H. HORN (Trans. Amer. Ent. Soc., 311-342) *Caryoborus Veseyi*, n. sp. 313, Lower Cal.; *Bruchus sordidus*, n. sp. 319, Lower Cal.; *B. impiger*, n. sp. 323, Cal.; *B. Ulkei*, n. sp. 324, Ariz.; *B. bivulneratus*, n. sp. 325, Southern and Western States; *B. cruentatus*, n. sp. 325, Southern and Western States; *B. limbatus*, n. sp. 326, Lower Cal.; *B. discolor*, n. sp. 326, Tex.; *B. nigrinus*, n. sp. 327, Penn.; *B. pruininus*, n. sp. 327, Ariz.; *B. aureolus*, n. sp. 329, Cal.; *B. Floridae*, n. sp. 332, Florida; *B. protractus*, n. sp. 332, Lower Cal.; *B. pectoralis*, n. sp. 333, Tex.; *B. bisignatus*, n. sp. 334, Kansas; *B. alboscuteatus*, n. sp. 334, Georgia; *B. perforatus*, n. sp. 335, Ariz.; *B. distinguendus*, n. sp. 336, Georgia; *B. paterculus*, n. sp. 336, Kansas; *B. calvus*, n. sp. 336, Mass., Tenn.; *B. amicus*, n. sp. 337, Tex.; *B. longistylus*, n. sp. 339, Dist. Col.; *B. Schrankiæ*, n. sp. 339, Mo.; *B. mixtus*, n. sp. 340, Utah; *B.*

* This genus was previously described by Mr. H. W. Bates as *Mecotetartus* Trans. Ent. Soc. Lond. 1872, p. 213 [Lec.]

placidus, n. sp. 341, Ariz.; *B. exiguus*, n. sp. 341, Kansas; *B. seminulum*, n. sp. 342, Penn., Cal.; *B. macrocerus*, n. sp. 342, Dist. Col., Tenn.

A. S. PACKARD, Jr. (3d Ann. Rep. Ins. Mass.) notices the habits of *Bruchus fabæ*, Riley.

CHRY SOMELIDÆ.

G. R. CROTCH (Proc. Acad. Nat. Sc., 19-83) *Donacia pubicollis*, n. sp. 21, Illinois (*pubicollis* Suffrian, 1872); *D. texana*, n. sp. 22, Tex.; *Zeugophora varians*, *Z. puberula*, *Z. consanguinea*, n. sp. 23, Illinois; *Lema texana*, n. sp. 25, Tex.; *L. peninsulæ*, n. sp. 25, Lower Cal.; *L. Sayi*, n. sp. 26, Gulf States; *Coscinoptera aenescens*, n. sp. 29, Georgia; *C. major*, n. sp. 29, Tex.; *Monachus thoracica*, n. sp. 31, Florida; *Griburius Lecontei*, n. sp. 32, Tex.; *Pachybrachys Xanti*, n. sp. 32, Lower Cal.; *Fidia murina*, n. sp. 33, U. S.; *Heteraspis marcassita*, n. sp. 35, Pa. Ga.; *Glyptoscelis illustris*, n. sp. 35, Cal.; *G. squammulatus*, n. sp. 36, Cal.; *G. alternatus*, n. sp. 36, Cal.; *Typophorus metasternalis*, n. sp. 38, Ill.; *T. oregonensis*, n. sp. 39, Oregon; *Chalcoparia* (gen. nov.) 39; *Paria lævicollis*, n. sp. 40, Penn.; *P. viridicyanea*, n. sp. 40, Ill.; *Metaparia* (gen. nov.) *clytroides*, n. sp. 40, Tex.; *Metachroma angustum*, n. sp. 41, Mo.; *M. californicum*, n. sp. 41, Cal.; *M. peninsulare*, n. sp. 42, Lower Cal.; *M. vicinum*, n. sp. 43, South Car.; *M. marginale*, n. sp. 43, North Car.; *M. floridanum*, n. sp. 43, Florida; *M. lævicolle*, n. sp. 43, North Car.; *M. pellucidum*, n. sp. 43, North Car.; *M. laterale*, n. sp. 44, North Car. Kansas; *Colaspis Arizonae*, n. sp. 45, Ariz.; *C. nigrocyanæa*, n. sp. 45, Ariz.; *Plagiodera Arizonae* n. sp. 53, Ariz.; *Luperus brunneus*, n. sp. 54, North Car.; *Androlyperus* (gen. nov.) *fulvus*, n. sp. 55, Cal.; *Galerucella* (gen. nov.) 55; *Hypolampsis Mellyi*, n. sp. 58, Kansas; *Oedionychis opacior*, *O. lustrans*, *O. octomaculata*, n. sp. 60, Tex.; *O. interjectionis*, n. sp. 61, Tex.; *O. circumcincta*, n. sp. 62, Southern States; *O. flavocyanæa*, n. sp. 62, Tex.; *O. thymoides* n. sp. 63, Western States; *O. texana*, n. sp. 63, Tex.; *Batophila cyanipennis*, n. sp. 65, Tex.; *Orchestrus Zimmermanni*, n. sp. 66, Missouri; *O. oregonensis*, n. sp. 66, Oregon; *O. Lewisii*, n. sp. 66, Col.; *O. æneicollis*, n. sp. 67, Middle and Southern States; *O. chalybeipennis*, n. sp. 67, N. J.; *Aphthona texana*, n. sp. 67, Tex.; *Systema collaris*, n. sp. 68, Tex.; *Orthaltica* (gen. nov.) 69; *O. recticornis*, n. sp. 70, Cal.; *Luperaltica* (gen. nov.) 70; *Haltica Burgessii*, n. sp. 71, Fla.; *Crepidodera scabricula*, n. sp. 71, Tex.; *C. nana*, n. sp. 72, South Car.; *Epitrix fuscula*, *E. lobata*, n. sp. 72, South Car.; *Mantura Floridana*, n. sp. 73, Fla.; *Cerataltica* (gen. nov.), 73; *Chaetocnema crenulata*, n. sp. 74, North Car.; *C. alutacea*, n. sp. 74, Fla.; *C. parcepunctata*, n. sp. 74, Penn.; *C. Texana*, n. sp. 74, Tex.; *C. confinis*, n. sp. 75, North Car.; *C. elongata*, n. sp. 75, Col.; *Euplectroscelis* (gen. nov.) *Xanti*, n. sp. 75, Lower Cal.; *Chelymorphia Lewisii*, n. sp. 77, Col.; *C. phytophagica*, n.

sp. 77, Ariz.; *Cassida Texana*, n. sp. 78, Tex.; *Coptocycla Arizonae*, n. sp. 78, Ariz.; *C. Lecontei*, n. sp. 79, Ariz.; *Odontota omogera*, n. sp. 80, Tampico; *O. Walshii*, n. sp. 81, Ill.

TENEBRIONIDÆ.

V. MOTSCHOULSKY (Bull. Mosc., 1873, pt. 2) *Oplocephala gracilis* n. sp., p. 467, Ohio (= *bicornis*); *O. castanea* n. sp., p. 467, New Orleans (= ? *Evoplus ferrugineus*); *Platydemia nigratum* n. sp., p. 470, New Orleans (= *P. excavatum*); *P. oblongulum* n. sp., p. 470, Florida (= *subcostatum*); *Neomida Texana* n. sp., p. 478, Texas (= ? *janus*); *N. nigrata* n. sp., p. 478, Cal. (= ? *Oregonense*); *N. flavicornis* n. sp., p. 479, New Orleans (= *erythrocerum*); *Pentaphyllus americanus* n. sp., p. 482, Georgia (= *pallidus*).

MELOIDÆ.

GEO. H. HORN (Proc. Amer. Phil. Soc., 88-117) *Epicauta caviceps* n. sp. 99, Ariz.; *E. Wheeleri* Ulke, n. sp. 101, Ariz.; *E. funebris*, n. sp. 102, Texas; *Cantharis lugubris* Ulke, n. sp. 107, Cal.

CURCULIONIDÆ.

GEO. H. HORN (Proc. Amer. Phil. Soc., 407-469). *Scyphophorus robustior*, n. sp. 409; *S. Yuccæ*, n. sp. 410, Cal.; *Metamasius* (gen. nov.) 410; *Sphenophorus Ulkei*, n. sp. 413, Nebraska; *S. robustus*, n. sp. 419, U. S.; *S. costipennis*, n. sp. 420, U. S.; *S. latinasus*, n. sp. 421, Ga.; *S. scoparius*, n. sp. 424, Wisconsin; *S. Arizonaensis*, n. sp. 428, Ariz.; *S. cultellatus*, n. sp. 429, Kansas; *S. Germari*, n. sp. 430, Ks., Texas; *Dryotribus* (gen. nov.) 432, *D. mimeticus*, n. sp. 433, Florida; *Wollastonia* (gen. nov.) 433; *Amaurorhinus nitens*, n. sp. 434, Fla.; *Elassoptes* (gen. nov.) *marinus*, n. sp. 436, Cal.; *Cossonus Bohemanni* n. sp. 438, U. S.; *C. crenatus*, n. sp. 440, Cal.; *C. pinguis*, n. sp. 442, Georgia, Fla.; *C. dubius*, n. sp. 442, Missouri; *Phlæophagus apionides* n. sp., *P. minor* n. sp. 443, Penn.; *Rhyncolus protractus*, n. sp. 444, Cal.; *R. Oregonensis*, n. sp. 445, Oreg.; *Hexarthrum Ulkei*, n. sp. 446, D. C.; *Otidocephalus vittatus*, n. sp. 448, Cal.; *O. Ulkei*, n. sp. 449, Lower Cal.; *O. Chevrolatii*, n. sp. 450, Middle States; *O. larvicollis*, n. sp. 451, Georgia; *O. perforatus*, n. sp. 451, Md.; *Magdalis perforata*, n. sp. 453, Georgia; *M. cuneiformis*, n. sp. 453, Neb.; *M. Lecontei*, n. sp. 454, Ks. Cal.; *M. salicis*, n. sp. 455, Penn.; *M. inconspicua*, n. sp. 456, Penn.; *Balaninus quercus*, n. sp. 458, N. Y.; *B. caryæ*, n. sp. 460, N. Y.; *Orchestes niger*, n. sp. 462, Canada; *O. subhirtus*, n. sp. 462, Ill.; *Rhyssomatus æqualis*, n. sp. 464, Penn.; *Rh. pubescens*, n. sp. 465, Cal.; *Chalcodermus inæquicollis*, n. sp. 467, Ga.; *C. collaris*, n. sp. 467, Tex.; *Analcis variegatus*, n. sp. 468, Ill.

SCOLYTIDÆ.

C. V. RILEY (5th Ann. Rep. 103) gives an account of *Scolytus caryæ* Riley, which is however *C. quadrispinosus* Say.

HEMIPTERA.

A. S. PACKARD, JR. (American Naturalist, vii). Injurious and Beneficial Insects.

C. V. RILEY (Fifth Annual Report on the Insects of Missouri), p. 12, defines the *Hemiptera*, and specifies the distinctive characters of the two great divisions *Heteroptera* and *Homoptera*.

C. STAAL. (Kongl. Svensk Vetensk. Akad., Handlingar, Vol. 11, No. 2). Enumeratio Hemipt.

F. WALKER (Canadian Entomologist, v, 172).

T. G. GENTRY (Observations on certain Plant lice, Canadian Entomologist, v, 121).

(HETEROPTERA.)

LYGÆIDÆ.

C. V. RILEY (5th Rep., 111) reports a new enemy to the Grape Vine, Potato, Cabbage, and to the Cruciferous plants, which he describes under the name of *Nysius destructor* Riley; at the same place he also figures *Micropus leucopterus* Say.

PHYTOCORIDÆ.

C. V. RILEY (5th Rep., 154, note) reports *Lygus robinæ* Uhl., *Orthotylus discoidalis* Uhl., and *Cyllocoris scutellatus* Uhl., as injurious to Yuccas, in puncturing and sucking the fruit.

ACANTHIIDÆ.

C. STAAL (Enumeratio Hemipt., iii, p. 148) describes as new *Acanthia coxalis*, Cuba; *A. luctuosa*, California, and reports *A. Signoretii* Guer., Cuba; *A. saltatoria* Linn., New York; *A. pallipes* Fabr., Sitka; *A. ligata* Say, *A. hirta* Say, Indiana; *A. lugubris* Say, *A. interstitialis* Say, Missouri; *A. humilis* Say, Florida; *A. confluens* Say, North America; *A. stellata* Curtis, Arctic America; *A. ornata* Staal, Mexico.

TINGITIDÆ.

C. STAAL (Enumeratio Hemipt., iii, p. 122) describes as new *Acalypta Tomsonii*, South Carolina; *Corythucha fascigera*, Mexico; *Gargaphia fasciata*, Illinois; *Tingis clavata*, New York; *T. lurida*, Illinois; *T. uniformis*, Illinois, and reports *Corythucha ciliata* Say, New Jersey; *C. arcuata* Say, Texas; *C. hyalina* H. Schf., North America; *C. gossypii* Fabr., Cuba, *C. decens* Staal, Mexico; *C. juglandis* Fitch, New Jersey; *Gargaphia patricia* Staal, Mexico; *Leptostyla oblonga* Say, New Jersey; *Phycatochila plexa* Say, Illinois; *Leptoypha mutica* Say, Texas; *Teleonomia sacchari* Fab., Cuba; *T. Belfragei* Staal, Texas; *Monanthia tabida* H. Schf., Mexico.

ARADIDÆ.

C. STAAL (Enumeratio Hemipt., iii, p. 136) describes as new *Aradus pallidicornis*, *A. gracilicornis* and *Brachyrhynchus abdominalis*, all from Cuba; and records *Aradus æqualis* Say, *A. robustus* Uhler, New Jersey; *A. fusco-annulatus* Staal, California; *A. similis* Say, So. Carolina; *A. acutus* Say, Texas; *A. cinnamomeus* Panzer, Texas; *A. quadri-lineatus* Say, Missouri; *A. crenatus* Say, Missouri; *A. rectus* Say, Florida; *A. tuberculifer* Kirby, and *A. affinis* Kirby, North America. He also describes *Aradus niger*, from South Carolina, and reports *Heræus annuliger* Staal, Mexico; *Artagerus histricus* Staal, *Dysodius crenulatus* Staal, *Cinyphus emarginatus* Staal, Mexico; *Brachyrhynchus lobatus* Say, Texas; *B. granulatus* Say, Baltimore; *Neuroctenus litigiosus* Staal, Mexico; *Aneurys politus* Say, Florida; *A. inconstans* Uhler, *A. simplex* Uhler, North America.

CIMICIDÆ.

C. STAAL (Enumeratio Hemipt., iii, p. 101) reports *Lytocoris Fitchii* Reuter, New York; *Dolichomerus elongatus* Reuter, *D. Stalii* Reuter, South Carolina; *Piezostethus sordidus* Reuter, Texas; *P. binotatus* Reuter, South Carolina; *Scolopostethus flavicornis* Reuter, Texas; *Lasiochilus pallidulus* Reuter, *Dilasia fuscula* Reuter, *Dasypterus assimilis* Reuter, all from South Carolina; *Triphleps rugicollis* Reuter, Texas; *T. latulus* Reuter, New Jersey; *T. insidiosus* Say, New York; *Cardiastethus luridellus* Fieber, Pennsylvania.

NABIDÆ.

C. STAAL (Enumeratio Hemipt., iii, p. 108) describes as new *Pagasa pallipes*, Texas; *P. nitida*, Wisconsin, and reports *Alloeorhynchus trimacula* Stein, Mexico, and *Prostemma fuscum* Stein, Pennsylvania. He sets aside the commonly known genus *Nabis* Latr., for the more ancient one of Schrank, viz., *Coriscus*; and in it he records *C. subcoleopratus* Kirby, Wisconsin; *C. crassipes* Reuter, Mexico; *C. sericans* Reuter, Texas; *C. sordidus* Reuter, Vera Cruz; *C. pallescens*

Reuter, Wisconsin; *C. annulatus* Reuter, Illinois; *C. inscriptus* Kirby, America borealis; *C. rufusculus* Reuter, New York; *C. fesus* Linn., America borealis; *C. Kalmii* Reuter, Wisconsin; *C. roseipennis* Reuter, Wisconsin; *C. punctipes* Reuter, New Jersey; *C. propinquus* Reuter, Wisconsin; *C. vicarius* Reuter, Illinois; *C. nigriventris* Staal, Mexico; *C. Canadensis* Provancher, Canada. This last is the previously described *C. coleopratus* Kirby; *Metatropiphorus Belfragei* Reuter, Texas.

(HOMOPTERA.)

FULGORIDÆ.

C. V. RILEY (5th Rep., 122) figures and notes the habits of *Pæciloptera pruinosa* Say, in puncturing and depositing eggs in the tender twigs of the Sassafras.

CICADIDÆ.

A. S. PACKARD, JR. (American Naturalist, vii, 537) describes the recurrence of *Cicada septendecim* Linn., and notes its injuries to forest and fruit trees.

MEMBRACIDÆ.

C. V. RILEY (5th Rep., 121) details the habits of *Ceresa diceros* Say, and figures the young and adult.

APHIDÆ.

T. G. GENTRY (Can. Ent., v, 121) notices the development of a species of *Aphis* occurring upon the shoots of *Rumex crispus*.

F. WALKER (Can. Ent., v, 172) notes the agreement of certain European and American *Aphides*, and believes that the difference in manner of life reported in the paper of Mr. Gentry does not really occur.

COCCIDÆ.

C. V. RILEY (5th Rep. 57) gives a detailed history of *Phylloxera vastatrix*, Planchon, and adds extensive and important details respecting the habits and classification of *Mytilaspis pomicorticis* Riley, and *M. pinifolia* Fitch.

ORTHOPTERA.

F. B. CAULFIELD (Canadian Entomologist, v, 60). A note on Diapheromera.

T. GLOVER (Monthly Reports of the Agricultural Department). A note on the ravages of Calopteni.

S. I. SMITH (Ann. Rep. Sec. Conn. Board Agric., 1872, pp. 345-383). Report of the Entomologist to the Connecticut Board of Agriculture. The reporter gives a popular account of "Grasshoppers and their allies" with tables of the families and genera found in the state. A list of sixty-one species occurring in Connecticut is appended; no new species are mentioned.

C. THOMAS (U. S. Geol. Surv. Territories). Acrididæ of North America. This is the most extensive work that has ever appeared upon the Orthoptera of North America.

————— (Sixth Annual Rep. U. S. Geol. Surv. Territories, pp. 719-725). Notes on Orthoptera. The author offers a few general remarks on the Orthoptera collected in 1872 by the Survey; they are almost entirely upon the Acridians, and the descriptions of and special remarks on the species which follow confined to that family. Other papers of this author exclusively upon Acrydii, have appeared in the "Proceedings of the Philadelphia Academy" and the "American Naturalist."

GRYLLIDES.

S. I. SMITH (Conn. Ent. Rep.) gives an account of the injuries and stridulation of *Æcanthus niveus*, with notices of the ground and mole-crickets; the following species are accredited to the state: *Æcanthus niveus*, *Nemobius fasciatus*, *N. vittatus*, *Gryllus luctuosus*, *G. abbreviatus*, *G. neglectus*, *G. domesticus* [the first time it has been recorded from New England], *Gryllotalpa borealis*, *G. Columbia* and *Tridactylus terminalis*.

LOCUSTARIÆ.

S. I. SMITH (Conn. Ent. Rep.) refers to the habits and stridulation of several species, especially of *Cyrtophyllus concavus*, *Phylloptera oblongifolia*, *Phaneroptera curvicauda*, *Orchelimum vulgare*, *Conoceph-*

alus robustus and *Ceuthophilus maculatus*; besides the foregoing, the following species are said to be found in Connecticut: *Phylloptera rotundifolia*, *Microcentrum affiliatum*, *Conocephalus ensiger*, *Xiphidium fasciatum*, *X. brevipenne*, *Orchelimum concinnum*, *O. glaberrimum*, *Thyreonotus pachymerus* and *T. dorsalis*.

ACRIDII.

T. GLOVER (Monthly Reports Dep't Agric. pp. 238, 347-8, 427-8, 498, 578-9) gives brief accounts of the injuries done by *Caloptenus spretus*, *C. femur-rubrum* and undetermined species of the same genus, in the states of N. Hampshire, New York, Virginia, W. Virginia, Tennessee, Kentucky, Ohio, Indiana, Illinois, Wisconsin, Minnesota, Iowa, Missouri, Kansas, Louisiana, Texas, Nebraska, Montana, Dakota, Colorado and California.

S. I. SMITH (Conn. Ent. Rep.) gives notices of the destructive propensities and general characters of a number of species, especially of *Caloptenus bivittatus*, *C. femur-rubrum*, *C. spretus*, *Ædipoda phænicoptera*, *Tragocephala viridifasciata* and *Chloëaltis conspersa*; besides the above, the following are said to occur in the state: *Opomala brachyptera*, *Acridium alutaceum*, *A. rubiginosum*, *Pezotettix Scudderi*, *Arcyptera lineata*, *Ædipoda Carolina*, *Æ. xanthoptera*, *Æ. sulphurea*, *Æ. æqualis*, *Æ. verruculata*, *Æ. maritima*, *Æ. marmorata*, *Æ. eucerata*, *Æ. pellucida*, *Æ. sordida*, *Chloëaltis viridis*, *C. punctulata*, *Stenobothrus curtipennis*, *S. maculipennis*, *Tettix granulata*, *T. ornata*, *T. cucullata*, *T. triangularis*, *Tettigidea lateralis*, *T. polymorpha* and *Batrachidea cristata*.

C. THOMAS (Proc. Acad. Nat. Sc. Phil. 1873, 295-7). Descriptions of new species of Orthoptera collected in Nevada, Utah and Arizona, by the expedition under Lieut. G. M. Wheeler. Describes *Pedioscirtetes*, nov. gen., *P. Nevadensis*, nov. sp. (no loc.) and *Acridium Shoshone* nov. sp. (S. E. Nevada and S. W. Utah).

————— (Report of the U. S. Geol. Surv. of the Territories, Vol. v, Part I). The Acrididæ of North America. The author divides his work into Part I, Synopsis of the Acrididæ of North America [north of Mexico] (pp. 1-190) and Part II, Acrididæ of North America not found in the United States (pp. 191-262). The work is accompanied by a single uncolored plate. The following species are figured:—*Tropidolophus formosus*, *Rhomalea centurio*, *Tragocephala viridifasciata*, *Brachyepplus magnus*, *Caloptenus differentialis*, *Oxycoryphus compressicornis* (European!), *Acridium Americanum*, *Stenobothrus* sp. (European!), *Pyrgomorpha punctipennis*, *Boopedon nubilum*, *Tryxalis brevipennis*, *Acrolophitus hirtipes*, *Tettix* sp. (European!), *Pezotettix* sp. (European!), *Opomala bivittata*, *Stauronotus* sp. (European!). Part I includes a list of authorities, 4 pp., an Introduction, 27 pp,

giving an account of the external and internal structure, the mode of oviposition and stridulation of Acridians; a chapter on classification, 13 pp, in which the arrangement of the families of Orthoptera, as given by different authors, is discussed, and is followed by the special treatment of the Acridians; a brief account of the geographical distribution of the genera and species of North America, 4 pp., according as they occur in the following divisions:—1. British America; 2. Eastern United States (from the west line of Missouri, or eastern border of Great Plains, to the Atlantic coast); 3. The Rocky Mountain district; 4. The Pacific coast; 5. Mexico; 6. West Indies; 7. Central America. This is succeeded by notes on the geographical distribution of some United States species, 4 pp., belonging to the genera *Mesops*, *Opomala*, *Pyrgomorpha*, *Chrysochraon*, *Acrolophitus*, *Pedioscertetes*, *Stenobothrus*, *Stetheophyma*, *Tragocephala*, *Tomonotus*, *Stauronotus*, *Tropidolophus*, *Ædipoda*, *Boopedon*, *Brachypeplus*, *Pezotettix*, *Platyphyma*, *Ommatolampis*, *Caloptenus*, *Acridium*, *Tropidacris* and *Rhomalea*. A synoptical table of the United States genera follows, 4 pp. The bulk of the Part, commencing at p. 55, is occupied with the description of the species, genera and higher groups of Acridians found north of Mexico. The author adopts the following system:—

SUB-FAMILIES.	DIVISIONS.	SECTIONS.	GROUPS.	GENERA.	
Acridinæ...	Conocephalides.	Microcerides.	Proscopini.....	(unrepresented). Tryxalis.	
		Macrocerides	Tryxalini.....	Mesops. Opomala.	
			Trigonopterygini..	Pyrgomorpha. (unrepresented). Oxycoryphus. Chrysochraon. Acrolophitus. Pedioscertetes. Stenobothrus. Gomphocerus.	
	Orthocerides...			Ædipodini..	Stetheophyma. Tragocephala. Ædipoda. Tropidolophus. Stauronotus. Boopedon. Brachypeplus.
				Acridini.....	Pezotettix. Platyphyma. Ommatolampis. Caloptenus. Acridium. Tropidacris.
					Xiphocerini..... Phymatini.....
Xiphocerides...					
Tettiginæ..				Tettix. Tettigidea. Batrachidea.	

The following genera and species of United States Acridians are described, those considered new being italicized: *Tryxalis brevipennis* (Fla.); *Mesops Wyomingensis*, *chlorizans* (= ? *Op. Mexicana* Sauss.); *Opomala carinata*, aptera, brachyptera, punctipennis, bivittata, Neomexicana, varipes, marginicollis; *Pyrgomorpha brevicornis punctipennis* (E. Tenn.); *Oxycoryphus obscurus*; *Chrysochraon abdominalis*, (Montana), *viridis*, *conspersum* [sic!] (= *Chl. abortiva* Harr., *Sten. melanopleurus* Scudd.) *punctulatum* [sic!]; *Acrolophitus hirtipes*; *Pediocertetes Nevadensis*; *Stenobothrus occipitalis* (Colorado, etc.) *Coloradus* (= *bicolor* Thom.), *tricarinatus* (Wyoming), *admirabilis*, *subconspersus*, *speciosus*, *maculipennis*, *æqualis*, *bilineatus*, *propinquans*, *curtipennis* (= *longipennis* Scudd.), *occidentalis*, *brunneus*, *quadrinaculatus*, *gracilis*, *pelidius*; *Gomphocerus clavatus* (Kansas), *simplex*; *Stetheophyma lineata*, *gracilis*, *platyptera*; *Tragocephala obiona*, *pacifica* (Cala.), *infuscata*, *viridifasciata*; *Tomonotus sulphureus*, *xanthopterus*, *carinatus*, *tenebrosus* (= *pseudonietanus* Thom.), *Ædipoda venusta*, *marmorata*, *costalis*, *Wyomingiana*, *collaris*, *æqualis*, *verruculata*, *sordida*, *longipennis*, *Carolina*, *fenestralis*, *eucerata*, *Haydenii*, *gracilis*, *Kiowa*, *cineta*, *Plattei* (Colorado, Wyoming) *maritima*, *undulata*, *Carlingiana*, *trifasciata* (= *pruinosa* Thom.), *Hoffmanii* (no loc.), *neglecta*, *Montana*, *corallipes*, *Haldemanii*, *paradoxa*, *rugosa*, *discoidea*, *phœnicoptera*, *parviceps*, *atrox*, *pellucida*; *Tropidolophus formosus*; *Stanonotus Elliotti*; *Boopedon nubilum* (= *nigrum* Thom.), *flavofasciatum*; *Brachypeplus magnus*; *Pezotettix obesa*, *picta*, *glacialis*, *manca*; *Börckii*, *Zimmermanii*, *longicornis*, *Nebrascensis*, *unicolor* (Ill.), *edax*, *Scudderi*, *borealis*, *Dodgei*; *Platyphyma Montana* (Montana); *Ommatolampis viridis*; *Caloptenus Turbullii*, *repletus*, *scriptus*, *bilituratus*, *occidentalis*, *punctulatus*, *femur-rubrum*, *spretus*, *griseus*, *bivittatus*, *differentialis*; *Chromacris colorata*; *Acridium frontalis*, *unilineatum*, *rubiginosum* (= ? *A. damnificum* Sauss.), *alutaceum*, *emarginatum*, *Americanum*, *Ambiguum*, *obscurum*, *Shoshone*; *Tropidacris dux*; *Rhomalea centurio* (= *Acrid. micropterum* Pal., *Dict. guttatus* Blanch.), *Marci* (= *R. gigantea* Burm. *Dict. reticulatus* Thumb.); *Tettix granulata*, *ornata*, *cucullata*, *femorata*, *triangularis*, *rugosa*, *oxycephala*, *Harrisii* (undescribed), *Tettigidea lateralis*, *polymorpha*; *Batrachidea cristata*, *carinata*.

In Part II he describes the following Acridians of North America, not known to occur within the limits of the United States. None of them are new. (Tryxalini) *Tryxalis Sumichrasti*; *Opomala varipes*, *punctipennis*, *marginicollis*, *crassipes*, *Mexicana*, *stenobothroides*; *Ichthydion Mexicanum*; *Pegasidion volitans*; *Sphenarium purpurascens*, *Mexicanum*; (Ædipodini) *Hippiscus ocelote*; *Machærocera Mexicana*; *Oxycoryphus Toltecus*, *Burkhartianus*, *Mexicanus*, *Aztecus*, *Totonacus*, *Zapotecus*, *Montezuma*, *tibialis*; *Stenobothrus mystecus*,

viatorius, gregarius, tepanecus, Mexicanus, decisis, arctatus, viridissimus, nobilis; *Stetheophyma variegata*; *Tomonotus Mexicanus*, nietanus, otomitus; *Ædipoda Haitensis*, pardalina, *Sumichrasti*, Mexicana, Tolteca, Azteca, tentatrix, speciosa, transtrigata, pallidipennis; *Hippopedon saltator*; *Leprus elephas*; (Acridini) *Dactylotum bicolor*, *Pœpedetes corallinus*, *Pedies virescens*, *Pezotettix septentrionalis*, Mexicana, *Sumichrasti*; *Platyphyma Aztecum*, Mexicana; *Ommatolampis Mexicana*; *Caloptenus fasciatus*, extremus, arcticus, selectus, Mexicanus, borealis; *Calacris pudica*; *Acridium inscriptum*, pectoralis, concolor, simulatrix, diversiferum, Cubense, Toltecum, piceifrons, vitticeps, scutellare, vicarium, strenum, varipes, luridescens, proprium, pantherinum, olivaceum, *Lophacris Velasquezii*, *Monachidium superbum*; (Xiphocerina) *Rhomalea eques*, pedes, pecticornis, auricornis; *Xiphocera pygmæa*, inclavata; (Tettiginæ) *Tettix Azteca*, chichimeca, purpurascens, *Batrachidea Tolteca*, *Chloriphyllum rhombeum*, plagiatum.

In an appendix to his work Mr. Thomas makes some additions to his historical sketch of the classification of Orthoptera, and adds a description of *Ephippigera Tschivavensis*. He also remarks that *Opsomala punctipennis* Thom. is probably *Pygomorpha punctipennis* Thom.; *Opsomala brevipennis* Thom., is *Chrysochaon viridis* (Scudd.) Thom.; *Opomala varipes*, *O. punctipennis* and *O. marginicollis* have been inadvertently inserted in both parts, and their presence in the United States is only asserted on the doubtful authority of DeHaan; *Hippiscus* ought probably to be placed in the vicinity of *Stauronotus*; and *Brachypeplus virescens* Charp., should have been added to the second part. A glossary, 6 pp., is appended.

One hundred and thirty-nine species are described in Part I, and ninety-five in Part II, making two hundred and thirty-one in all, allowing for the accidental repetition of three species.

C. THOMAS (Sixth Annual Rep. U. S. Geol. Surv. Terr.) describes the following species:—

Ædipoda Kiowa n. sp. from Nebraska, *Stenobothrus maculipennis?*, *Caloptenus occidentalis?*, *C. bivittatus*, *Acridium emarginatum*, *Opomala bivittata* and *Omatolampis viridis*, mostly from living specimens. He also adds remarks on the variations of *Ædipoda phænicoptera*, *Æ. tenebrosa*, *Æ. verruculata* and *Caloptenus differentialis*, and discusses the question of the probable identity of the species of *Ædipoda* described under the specific names of *discoidea*, *rugosa*, *corallipes*, *Haldemanii* and *paradoxa*; notes on the geographical distribution of a number of species are prefixed to the article.

C. THOMAS (Amer. Nat. vii, 566) describes (without naming) specimens of a species of this family from Arizona, which, "in specific characters, including even color, agree exactly" with *Acrolophitus*

hirtipes, but differ in having the pronotum devoid of a crest, so conspicuous in the latter, and in having its posterior margin obtusely rounded instead of acutely angled.

PHASMIDA.

F. B. CAULFIELD (Can. Ent., v, 60) records the frequent occurrence of *Diapheromera femorata* at Montreal in 1872.

S. I. SMITH (Conn. Ent. Rep.) mentions *Diapheromera femorata* from Connecticut.

BLATTARIÆ.

———— — (Conn. Ent. Rep.) records only *Stylopyga orientalis*, *Periplaneta Americana* and *Ectobia Germanica* from Connecticut.

FORFICULARIÆ.

—— ——— (Conn. Ent. Rep.) mentions the occurrence of *Labia minuta* in Connecticut.

NEUROPTERA.

L. CABOT (Illustrated Catalogue of the Museum Comp. Zool. v, 1872, omitted from last Record). The immature State of the Odonata. Part 1. Subfamily Gomphina. In this paper the larvæ or pupæ of seventeen species (seven from North America, four from South America, three from Asia, and three from Europe) are described, four having been raised and identified beyond any doubt. The species are determined by Dr. Hagen. Reference is made here only to the North American species. A synopsis of the species described follows. The work is illustrated by three lithographic plates.

H. HAGEN (Proc. Bost. Soc. N. H., xv, 243–248). On the larvæ of the Hemerobina. A preliminary notice of the larval characters of this group, with a synopsis of the larval character of the subfamilies.

H. HAGEN (Proc. B. S. N. H., xv, 263-301). Report on the Pseudoneuroptera and Neuroptera of North America in the Collection of the late Th. W. Harris. This paper gives a list of the species, with Harris' notes of date of capture and localities, and descriptions by Dr. Hagen of some immature forms identified by Harris. The collection comprises 136 species, 318 specimens; some of the species are still of the greatest rarity.

—— ——— (Ent. Zeitung, Stettin Jahrgang xxxiv, 33-62). Die Larven von Ascalaphus. A synopsis of the larval characters of the group. He had ten species before him, only three of which had been identified by being reared.

—— ——— (Ent. Zeit. Stettin, xxxiv, 249-295; 377-398). Die Larven von Myrmelcon. A synopsis of the larval characters of the group, based on twenty-one species, belonging to nine genera. Six species have been reared.

—— ——— (Proc. B. S. N. H., xv, 373-375). Notes on Mr. S. H. Scudder's "Odonata of the Isle of Pines."

—— ——— (Proc. B. S. N. H., xv, 376-377). Report on Mr. S. H. Scudder's Odonata from the White Mountains, after an examination of the types.

—— ——— (Proc. B. S. N. H., xv, 377). Notices the Ephemeroïd genus *Prosopistoma*.

—— ——— (Proc. B. S. N. N., xv, 384, 385) gives a list of species to illustrate the northward distribution of the Phryganidæ.

—— ——— (Hayden's 6th Ann. Rep. U. S., Geol. Surv. Territories, 727). Odonata from the Yellowstone.

A. FITCH (Fourteenth Report on the Injurious Insects of New York, 373) remarks on *Merope tuber* Newm.

J. WILLIAMS (Can. Ent., v, 201). On some of our

Common Insects. The Dragon Fly. Contains no new facts.

F. G. SANBORN (Proc. B. S. N. H., xv, 25). A note on *Boreus nivoriundus* Fitch.

G. W. MOREHOUSE (American Naturalist, vii, 666-669). The Structure of the Scales of *Lepisma saccharina*.

A. S. PACKARD, JR. (Fifth Rep. Peab. Acad. Sci. pp. 23-51). Synopsis of the Thysanura of Essex County, Mass., with descriptions of a few extralimital forms.

TERMITIDÆ.

H. HAGEN (Proc. B. S. N. H., xv, 277) publishes Harris' notes with remarks of his own on *Termes flavipes* Koll. in Mass.

PSOCIDÆ.

H. HAGEN (Proc. B. S. N. H., xv, 278) publishes Harris' notes, with remarks of his own, on *Psocus venosus*, Burm., *Ps. purus* Walsh, *Ps. striatus* Walk., *Ps. sparsus* Hag., *Ps. lugens* Hag., *Elipsocus signatus* Hag., *Psocus quadrifasciatus* Harr., *Psocus pusillus* Harris, contained in the Harris collection.

PERLIDÆ.

H. HAGEN (Proc. B. S. N. H., xv, 281) publishes Harris' note on the following species in the Harris collection, with descriptive and synonymical remarks of his own; *Pteronarcys proteus* Newm. *Pt. Californica*, *Pt. nobilis* Hag., *Pt. Pictetii* Hag., *Pt. regalis* Newm., *Pt. reticulata* Burm. (with the descriptions of the immature stages of *Pt. proteus*, *Californica* and *regalis*), *Perla abnormis* Newm., *P. isogona*, *P. sp. nov.*, *P. fulvovittata* Say MSS., *P. semifasciata?* Say, *Chloroperla brunneipennis?* Walsh, *Perla vitticollis* Harr., *Chloroperla bilineata* Say, *Isopteryx cydippe* Newm., *Teniopteryx maura* Pict., and *Nemoura perfecta?* Walk.

— — — (Hayden's 6th Rep. U. S. Geol. Surv. Terr., 729) records *Pteronarcys Californica* Hag., from headquarters of the Yellowstone River.

EPHEMERIDÆ.

H. HAGEN (Proc. B. S. N. H., xv, 290) publishes Harris' notes, with remarks of his own on *Ephemera decora* Walk., *E. natata* Walk., *Hexagenia limbata* Guér., *H. sp.*, *Baetis sp.*, *B. sp.*, *B. sp.*, *Potamanthus nebulosus* Walk., *Ephemerella sp.*, *Heptogenia maculipennis* Walsh, *Cloe undata* Pict., *C. sp.*

LIBELLULIDÆ.

L. CABOT (Cat. M. C. Zool., v, 1872) describes the larval or pupal forms of *Gomphus pilipes* Selys, S. Car.; *Gomphus* species, Illinois; *Gomphus* species, Mass.; *Gomphus* species, Texas; *Macrogomphus spiniceps* Mass.; *Progomphus*?? species, Mass.; *Hagenius brevistylus* Selys, Mass., N. Y., Kansas; *Cordulegaster Sayi* Selys, Maryland, Mass.

H. HAGEN (Proc. B. S. N. H., xv, 263) publishes Harris' notes of dates and localities, with remarks of his own on the species of this group in the Harris Collection, some of them types of Say. He refers to *Tramea Carolina* L., *Celithemis eponina* F., *Plathemis trimaculata* DeG., *Libellula pulchella* Drury, *L. quadrimaculata* L., *L. semifasciata* Burm., *L. exusta* Say, *L. deplanata* Rbr., *L. auripennis* Burm., *L. quadrupla* Say, *Mesothemis longipennis* Br., *simplicicollis* Say, *Diplax Elisa* Hag., *D. ornata* Rbr., *D. Berenice* Dr., *D. vicina* Hag., *D. rubicundula* Say, *D. albifrons* Chp., *D. semicineta* Say, *D. minuscula* Rbr., *Perithemis tenera* Say, *Macromia transversa* Say, *Epithea forcipata* Scudd., *E.?* *obsoleta* Say, *Cordulia Uhleri* Selys, *C. cynosura* Say, *C. lepida* Selys, *Anax junius* Dr., *Epiæschna heros* F., *Æschna clepsydra* Say, *Æ. constricta* Say, *Æ. janata* Say, *Gomphæschna furcillata* Say, *Neuræschna vinosa* Say, *Hagenius brevistylus* Selys, *Gomphus exilis* Selys, *Cordulegaster Sayi* Selys, *C. maculatus* Selys, *Calopteryx maculata* Beauv., *C. æquabilis* Say, *Heterina Americana* F., *Lestes eurinus* Say, *L. rectangularis* Say, *Lestes unguiculata* Hag.; *L. hamata* Hag., *Argia putrida* Hag., *Agrion civile* Hag., *A. Ramburii* Selys.

— — — (Proc. B. S. N. H., xv, 373) regards *Neoneura palustris* Hag. and *N. Carmatica*, perhaps a var. of it, as synonymous with *Agrion Maria* Scudder, confirms Scudder's identification of *Agrion cæcum* Hag.; refers *Macromia Cubensis* Scudd. to *Erythemis longipes* Hag., but for reasons given preserves the specific name *Cubensis*; refers ♀ *Tramea insulatus* Scudd. to *T. abdominalis*; regards *Libellula vinosa* Scudd. as *Dythemis rufinervis* Burm.; *Dythemis pleurosticta* as identical with *Macrothemis celeno* Selys; *Mesothemis Pæyi* is ♂ *Dythemis dicrotu* Hag.; *M. Gundlachii* is a young male of *M. simplicicollis* Say; refers Scudder's *Diplax ochracea* and *D. abjecta* to an undescribed species *D. fraterna* Hag. On p. 376, in Report on Scudder's Odonata from the White Mountains, he regards *Cordulegaster lateralis* = *Æschna obliqua* Say, var. *a*, and *C. Sayi* Selys; *Cordulia eremita* Scudd. = *C. albicineta* Burm.; *Cordulia Shurtleffi* = *C. bifurcata* Hag.

— — — (Hayden's 6th Ann. Rep. U. S. Geol. Surv., 727) records from the headwaters of the Yellowstone River *Lestes disjuncta* Selys, *L. congener* Hag., *Agrion* sp., *Gomphus* (Herpetogomphus) *vipirinus*? Selys, *G. colubrinus*? Selys, *Æschna constricta* Say, *Æ. eremita* Scudd., *A. multicolor* Hag., *A. propinqua* Scudd., *Libellula nodisticta* Hag., *L.*

forensis Hag., *L. saturata* Uhler, *L. flavida* Hag., *Mesothemis simplicollis* Hag., *M. longipennis* Burm., *M. corrupta* Hag., *M. composita* n. sp., *Diplax assimilata* Hag., *D. Scotica* Donovan., *D. vicina* Hag., *D. n.* sp., *Heterina Californica*.

SIALIDÆ.

H. HAGEN (Proc. B. S. N. H., xv, 298) edits the notes of Harris on the species of the group in the Harris collection, referring to the following: *Corydalis cornuta* Latr., *Chauliodes pectinicornis* L., *C. rastrocornis* Rbr., *C. serricornis* Say, and *Sialis infumata* Newm.

HEMEROBIIDÆ.

H. HAGEN (Proc. B. S. N. H., xv, 243-248) after general remarks on the transformations of this group, gives a synopsis of the larval characters of the seven subfamilies.

— — (Proc. B. S. N. H., xv, 299) edits the notes of Harris on the species in the Harris' Collection, referring to the following: *Dendroleon obsoletum* (Say), *Myrmeleon abdominalis?* Say, *M. tectus?* Walk., *Polystæchotes punctatus* F., *Chrysopa* sp.

— — (Ent. Zeitung, Stettin, xxxiv, 33) describes the larva of the following American species: *Ulula MacLeayana* Landsd., St. Vincent Island, W. Indies.

— — (Ent. Zeit. Stettin, xxxiv, 249, sp. 377) describes the larvæ of the following American species: *Acanthaclisis* (an congener Hag.?) Green River, Wyoming Terr.; *Dendroleon obsoletum* (Say) Washington, D.C.; *Myrmeleon immaculatum* DeG., Mass., Kansas; *M. sp.* Florida, *M. sp.* Cuba.

— — (Hayden's 6th Rep. U. S. Geol. Surv., Terr., 729) records *Polystæchotes punctatus* Hag. and *Myrmeleon diversus* n. sp. (from headquarters of Yellowstone River.

E. A. BIRGE (American Naturalist, vii, 432) notices the habits of the ant lion, the species not noticed.

PANORPIDÆ.

H. HAGEN (Proc. B. S. N. H., xv, 300) edits the notes of Harris on the following species from the Harris collection: *Panorpa lugubris* Swed., *P. debilis* Westw., *P. rufescens* Rbr., *P. nebulosa* Westw., *Bitacacus stigmaterus* Say, *Boreus nivoriundus* Fitch, *B. brumalis* Fitch.

F. G. SANBORN (Proc. B. S. N. H., xv, 25) notices the occurrence of *Boreus nivoriundus* Fitch in West Roxbury, Mass., on the snow in January; *B. brumalis* Fitch occurred with it. See p. 155.

A. FITCH (14th Rep. Ins. N. Y., 373) describes at length *Merope tuber* Newm.

PHRYGANEIDÆ.

H. HAGEN (Proc. B. S. N. H., xv, 293) edits Harris' notes, with re-

marks of his own on *Phryganea cinerea* Walk., *P. interrupta* Say, *P. vestita* Walk., *P. improba* Hag., *Neuronia pardalis* Walk., *N. dossuaria* Say, *N. stygipes* Say, *N. ocellifera* Walk., *N. postica* Walk., *N. semifasciata* Say, *Limnophilus argenteornatus* Say, *L. subguttatus* Walk., *L. pudicus* Hag., *L. plaga* Walk., *Hallesus hostis* Hag., *N. guttifer* Walk., *H. Argus* Harris, *H. vittatus* Harr., *Platyphylax subfasciatus* Say, *P. coagulata* Say, *P. irroratus* Fabr., *Goniataulius* sp? *Neophylax concinnus* Say, *Apatania nigra* Walk., *Mormonia* sp., *Hydropsyche morosa*? Hag., *Polycentropus cinereus*? Hag., *P?* sp., *Chimarra aterrima* Hag., *Macronema zebratum* Hag., *Setodes exquisita* Walk., *S. ignita*? Hag., *Setodes micans* Hag., *Leptocerus?* sp., *L. niger* L., *Molanna cinerea*? Hag.

— — (Proc. B. S. N. H., xv, 384) gives a list of species to illustrate the northern distribution of the subfamily.

— — Hayden's 6th Rep. U. S. Geol. Surv. Terr., 729) records a ♂ *Stathmophorus* allied to *S. Argus* Harr. from headquarters of the Yellowstone River.

THYSANURA.

G. W. MOREHOUSE (Amer. Nat. vii, 666) remarks on the structure of the scales of *Lepisma saccharina* L.

A. S. PACKARD, Jr. (5th Rep. Peab. Acad. 23), after giving a résumé of the literature of the North American species, describes as new *Anura gibbosa*, Maine; *Achorutes boletivorus*, Maine, Mass.; *A. marmoratus*, Maine; *A. Texensis*, Texas; *A. pratorum*, Maine; *Isotoma nivalis*, Maine, Mass.; *I. albella*, Maine, Mass.; *I. leonina*, Mass.; *I. glauca*, Mass.; *I. Belfragei*, Texas; *I. Walkerii*, Mass.; *I. tricolor*, Mass.; *I. purpurascens*, Texas; *I. plumbea*, Mass.; *Lepidocyrtus marmoratus*, Mass.; *L. metallicus*, Maine, Mass.; *L. albus*, Maine, Tenn.; *L. bipunctatus*, Texas; *Degeeria perpulchra*, Texas; *D. griseo-olivata*, Mass.; *D. purpurascens*, Maine, Mass., Tenn.; *D. decem-fasciata*, Mass., Tenn., Texas; *Orchesella carneiceps*, Tenn.; *O. flavo-picta*, Mass., N. Y., Tenn.; *Papirius marmoratus*, Maine, Mass.; *P. Texensis*, Texas; *Smynthurus roseus*, Mass.; *S. 4-signatus*, Maine; *Lepisma quadriseriata*, Mass., R. I., Conn., Tenn.; *L. domestica*, Mass.; *L. spinulata*, Texas; *L. mucronata*, Pulvon, West Coast Nicaragua; *Machilis brevicornis*, Texas; *M. orbitalis*, Idaho Territory.

He records *Anurida maritima* (Linn.) from Mass. to New Jersey, *Lipura fimetaria* (Linn.) from Mass., *L. ambulans* (Linn.), Washington, *Achorutes nivicola* (Fitch), Mass., *Tomocerus plumbeus* (Linn.) Mass., Tenn., Texas, *Smynthurus elegans* (Fitch), Mass., Tenn., *Lepisma saccharina* (Linn.), Mass., *Machilis variabilis* (Say), Mass., Ind., Tenn.

ARACHNIDA.

T. THORELL (Ofversigt af K. Vetenskaps Akademiens Förhandlingar, published June, 1872, p. 147-166). Om naagra Arachnider fraan Grœnland. On new Arachnida from Greenland. There are now 33 species of Arachnids, *i.e.*, 18 spiders, 1 opilionid, and 14 mites, including *Tyroglyphus farinæ* (DeGeer) introduced from Denmark, known to inhabit Greenland. The descriptions are in Latin.

A. S. PACKARD, Jr. (3d Ann. Rep. Ins. Mass. 1-27, and Am. Nat. vii, 524-548). A new Trombidium (?).

————— (Am. Nat. vii, 740.) Discovery of a Tardigrade.

C. V. RILEY (Am. Nat. vii, 16-19). Harvest Mites.

A. FITCH (Trans. N. Y. Ag. Soc. 355-381, 1871, not previously recorded). 12th Annual Report on Injurious and Beneficial Insects, New York.

ARANEÆ.

T. THORELL (Ofvers. K. Vetensk. Akad. Förh. 1872) describes as new from Greenland *Tetragnatha Grœnlandica*, *Linyphia*, inc. spec.; *Erigone frigida*, *E. vaginata*, *E. modesta*, and three species more are indicated; *Dictyna hamifera*, *Thanatus arcticus*, *Lycosa Grœnlandica*, *L. glacialis*, and *Trochosa insignita*.

He also records *Erigone Spitsbergensis* Thor. as occurring in Greenland.

ACARINA.

————— (Ofvers. K. Vetensk. Akad. Förh. 1872) describes as new from Greenland *Trombidium hyperboreum*; *T.?* inc. spec. larva, on *Chironomus frigidus* Zett., *Rhyncholophus?* inc. spec. larva; *Hygrobates Fabricii* (?=*Acarus aquaticus* O. Fabr.); *Dermanyssus ambulans*, and records the occurrence of *B. arctica* Thor. (?=*Acarus longirostris*, Fabr.) in Greenland; it also occurs in Spitzbergen (Thorell).

A. S. PACKARD, Jr. (3d Ann. Rep. Ins. Mass. 26, and Amer. Nat. 547) describes and figures as new *Trombidium?* *bulbipes*, from Mass., which devours the aphids of the rose.

C. V. RILEY (Amer. Nat. vii, 16) describes and figures as new *Leptus? Americanus*, and *L. irritans*, Missouri.

A. FITCH (12th Ann. Rep. Ins. N. Y. 1871) regards the original habitat of *Ixodes Americanus*, as New York; and describes as new *Ixodes 5-striatus*, Virginia and Indian Territory; *I. Robertsonii*, Indian Territory; *I. cruciarius*, N. Y.; *I.? odontalgiae*, N. Y.

TARDIGRADA.

A. S. PACKARD, JR. (Amer. Nat. vii, 740) describes as new, with a figure, *Macrobiotus Americanus*, from Maine, and indicates the existence of another species in Iowa.

MYRIOPODA.

O. HARGER (Amer. Journ. Sc. Arts. iv, 1872, omitted in Record for 1872). Descriptions of New North American Myriopods, with figures.

S. H. SCUDDER (Memoirs Boston Soc. Nat. Hist. ii, 231-239). On the Carboniferous Myriopods preserved in the Sigillarian Stumps of Nova Scotia. In this paper a new family, *Archiulidae*, is proposed for the fossil genera *Xylobius* Daws., and *Archiulus* Scudd.

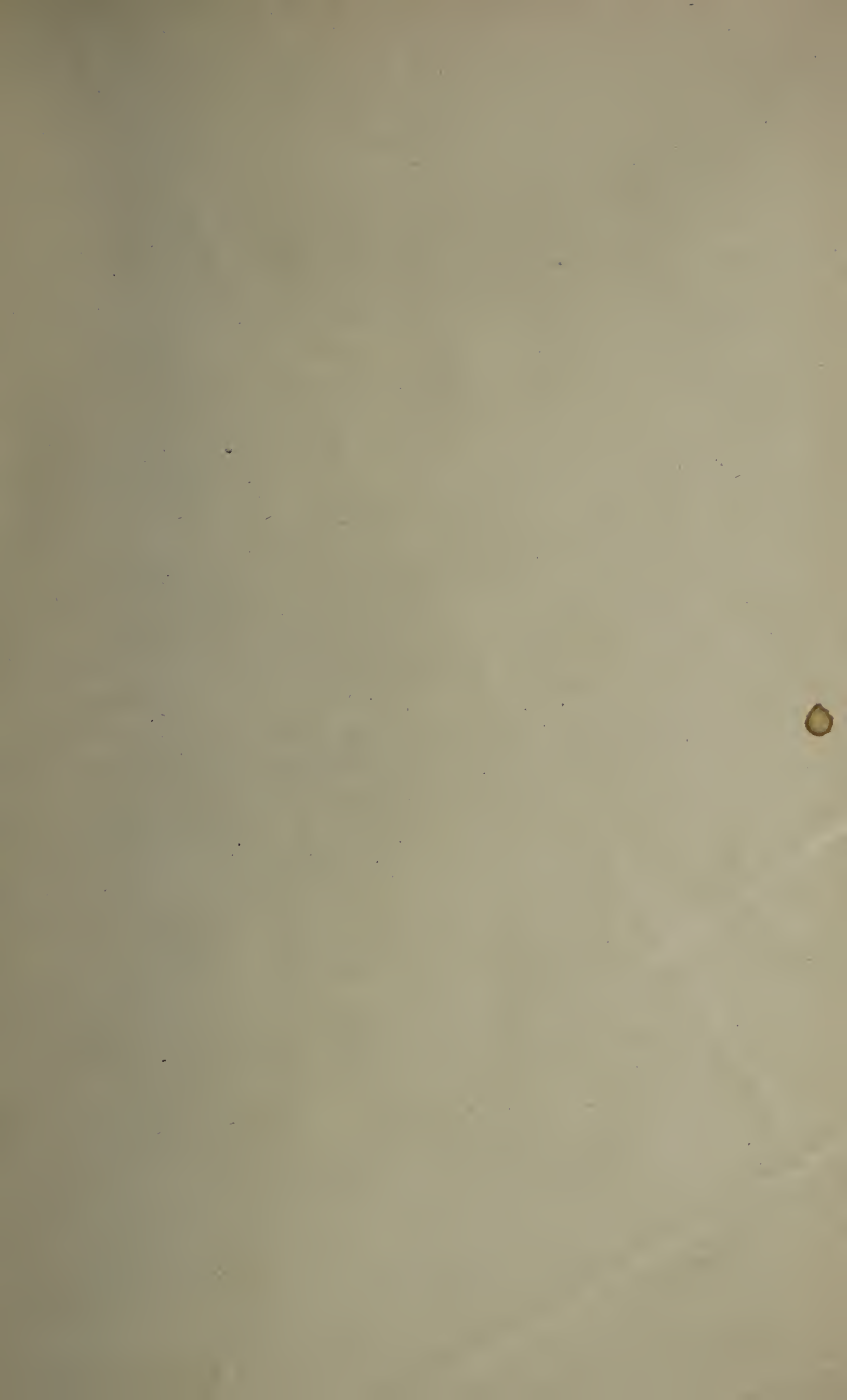
CHILOPODA.

O. HARGER (Amer. Journ. Sc. Arts, iv, 1872) describes as new *Lithobius pinetorum*, valley of John Day river, Oregon; *Geophilus gracilis*, New Haven, Conn.

CHILOGNATHA.

O. HARGER (Amer. Journ. Sc. Arts, iv, 1872) describes and figures *Trichopetalum lunatum*, New Haven, Conn., *T. glomeratum*, Oregon, *T. iuliodes*, Simmon's Harbor, north shore of Lake Superior; *Julus furcifer*, Oregon, *Polydesmus armatus*, Oregon.

S. H. SCUDDER (Mem. Bost. Soc. Nat. Hist. ii, 231) describes as new *Xylobius similis*, *X. fractus*, *X. Dawsoni*; *Archiulus* (gen. nov.) *xylobioides*, sp. n. from the carboniferous formation of Nova Scotia.



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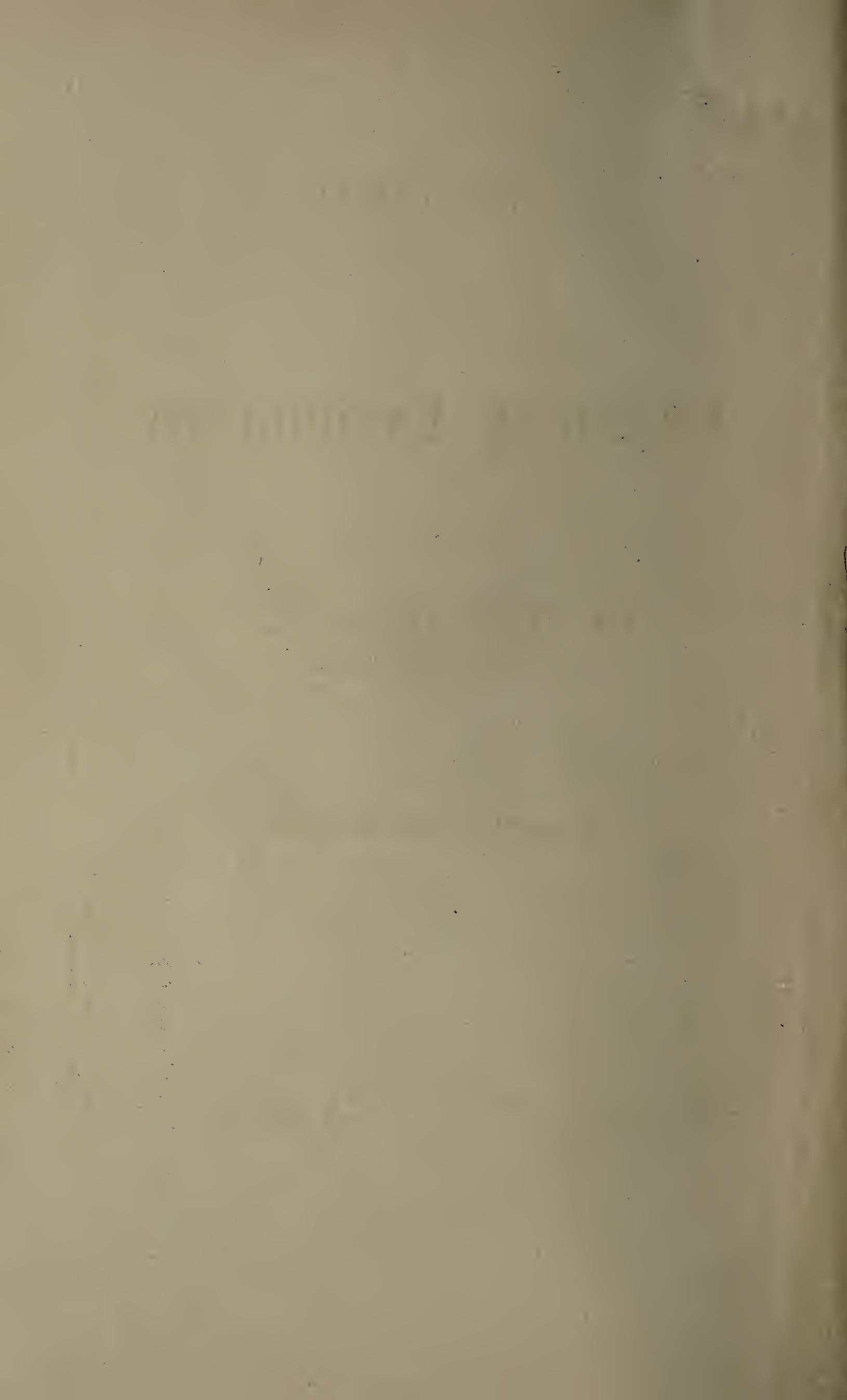
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RECORD OF AMERICAN ENTOMOLOGY

FOR THE YEAR 1872.

HYMENOPTERA.

C. A. BLAKE (Trans. Amer. Ent. Soc., iv, 71). Additions to the "Synopsis of North American Mutillidæ."

E. NORTON (Trans. Amer. Ent. Soc., iv, 77). Notes on North American Tenthredinidæ, with descriptions of new species.

E. T. CRESSON (Trans. Amer. Ent. Soc., iv, 29). Synopsis of the North American species belonging to the genera *Leucospis*, *Smicra* and *Chalcis*.

E. T. CRESSON (Trans. Amer. Ent. Soc., iv, 87). Description of a new Species of *Masaris*, from California.

E. T. CRESSON (Trans. Amer. Ent. Soc., iv, 153). Hymenoptera Texana. This memoir comprises a list of all the Hymenoptera known to inhabit Texas, except those belonging to the Chrysididæ, Formicidæ and the smaller Chalcididæ. Over six hundred species are enumerated, nearly three hundred of which are new.

E. T. CRESSON (Canadian Entomologist, iv, 21). Descriptions of North American Hymenoptera, No. 1; p. 61, No. 2; p. 81, No. 3; p. 226, No. 4.

C. V. RILEY. Fourth Annual Report on the Noxious, Beneficial and other Insects of Missouri, 1872.

S. H. SCUDDER (Amer. Nat., vi, 665). Fossil Insects from the Rocky Mountains. Three species of Hymenoptera are cited.

A. S. PACKARD, Jr. (Memoirs of the Peabody Academy of Science, III). Embryological Studies on Hexapodous Insects. In this paper the author gives an illustrated account of the embryology of *Nematus ventricosus* Klug, and concludes that the development of this, and probably of all the Tenthredinidæ, accords in its main features with that of the honey bee, the differences in the later stages of the embryo being those which distinguish the caterpillar-like form of the saw-fly larvæ from the footless maggot of the bees, and hence of secondary importance.

A. S. PACKARD, Jr. Second Annual Report on the Injurious and Beneficial Insects of Massachusetts.

APIARIÆ.

E. T. CRESSON (Trans. Amer. Ent. Soc., iv, 248) describes as new from Texas *Colletes Texana*, *Sphecodes Texana*, *S. mandibularis*, *Halic-tus occidentalis*, *H. armaticeps*, *H. Texanus*, *H. bardus*, *H. ornatipes*, *H. impurus*, *H. lusorius*, *H. connexus*, *H. disparilis*, *H. coactus*, *H. stultus*, *H. albitarsis*, *Agapostemon Texanus*, *Andrena reflexa*, *A. Belfragei*, *A. permitis*, *A. melliventris*, *A. verecunda*, *A. imitatrix*, *A. brunniventris*, *A. Texana*, *A. miserabilis*, *A. bipunctata*, *Panurgus æthiops*, *P. albitarsis*, *P. ornatipes*, *P. picipes*, *Osmia Texana*, *O. subfasciata*, *Megachile fortis*, *M. comata*, *M. albitarsis*, *M. disparilis*, *M. amica*, *M. exilis*, *M. facunda*, *M. frugalis*, *M. gentilis*, *M. inimica*, *M. lucrosa*, *M. grandis*, *M. optiva*, *M. nupta*, *M. studiosa*, *M. osmoides*, *M. variolosa*, *Anthidium concinnum*, *Nomada Texana*, *Cœliorys Texana*. *C. edita*, *C. insita*, *C. scitula*, *Stelis costalis*, *Melecta interrupta*. *Melissodes atripes*, *M. Comanche*, *M. Texana*, *M. rivalis*, *M. intorta*, *M. Belfragei*, *M. intermedia*, *M. honesta*, *M. pygmæa*, *M. enavata*, *M. spissa*, *M. brevicornis*, *M. albata*, *M. ? ursina*, *M. ? densa*, *M. ? marginella*, *Anthophora Texana*, *Xylocopa Texana*, *X. purpurea*, *Centris lanosa* and *Apathus variabilis*.

VESPIDÆ.

E. T. CRESSON (Trans. Amer. Ent. Soc., iv, 87) describes as new *Masaris Edwardsii* from California.

E. T. CRESSON (Trans. Amer. Ent. Soc., iv, 232) describes as new *Eumenes Belfragei*, *E. Bollii*. *Odynerus Texanus*, *O. clusinus*, *O. evectus*, *O. designatus*, *O. delicatus*, *O. cultus*, *O. verus*, *O. ductus*, *O. fusus*, *O. firmus*, *O. geminus*, *O. manifestus*, *O. colon*, *O. fundatus*, *O. austrinus*, *O. bellulus*, *O. electus*, *Pterochilus Texanus*, *P. laticeps*, *Polistes perplexus*, *P. generosus*, *P. Texanus*, *P. bellicosus* and *P. variatus* from Texas.

CRABRONIDÆ.

E. T. CRESSON (Trans. Amer. Ent. Soc., iv, 226) describes as new *Crabro Texanus*, *Mimesa tibialis*, *Cerceris mimica*, *C. gnara*, *C. firma*, *C. morata*, *C. fasciola* and *C. jucunda* from Texas.

NYSSONIDÆ.

E. T. CRESSON (Trans. Amer. Ent. Soc., iv, 222) describes as new *Stizus Texanus*, *S. fervidus*, *Nysson Texanus*, *N. ? inerme*, *Gorytes Belfragei*, *G. costalis*, *G. Bollii* and *Alyson Texanus* from Texas.

BEMBICIDÆ.

E. T. CRESSON (Trans. Amer. Ent. Soc., iv, 218) describes as new *Bembex nubilipennis*, *B. Texana*, *B. Belfragei*, *Monedula formosa* and *Monedula neglecta* from Texas.

LARRIDÆ.

E. T. CRESSON (Trans. Amer. Ent. Soc., iv, 213) describes as new *Larrada Americana*, *L. Texana*, *L. Belfragei*, *Tachytes elongatus*, *T. validus*, *T. sericatus*, *T. obscurus*, *T. Texanus*, *T. rufo-fasciata*, *Astata rufiventris* and *A. terminata* from Texas.

SPHEGIDÆ.

E. T. CRESSON (Trans. Amer. Ent. Soc., iv, 209) describes as new *Ammophila grossa*, *A. inepta*, *Pelopæus Texanus*, *Sphex abdominalis*, *S. rufiventris*, *S. Texana*, *S. Belfragei*, *S. lauta*, *S. dubitata* and *Priononyx brunnipes* from Texas.

POMPILIDÆ.

E. T. CRESSON (Trans. Amer. Ent. Soc., iv, 202) describes as new from Texas *Priocnemis Heiligbrodtii*, *P. Texanus*, *P. facetus*, *Agenia Belfragei*, *A. longa*, *Parapompilus vicinus*, *P. Texanus*, *P. contiguus*, *Notocyphus dorsalis*, *N. Texanus*, *Planiceps feralia*, *Aporus minimus*, *A. rufiventris*, *Ceropales Texana*, *Ceropales elegans* and *C. fulvipes*.

SCOLIADÆ.

E. T. CRESSON (Trans. Amer. Ent. Soc., iv, 200) describes as new *Myzine dubiosa*, *M. Texana*, *M. rufiventris* and *Elis lupina* from Texas.

MUTILLIDÆ.

C. A. BLAKE (Trans. Amer. Ent. Soc., iv, 71) describes as new *Mutilla Clotho*, *M. Leda*, *M. Chiron*, *M. Creon*, *M. Admetus*, *M. albopilosa*, *M. grandiceps*, *M. Electra*, *Agama Aulus*, *A. minuta*, *A. juxta* and *A. attenuata* from Texas.

DORYLIDÆ.

E. T. CRESSON (Trans. Amer. Ent. Soc., iv, 194) describes as new *Labidus nigrescens* and *L. minor* from Texas.

ICHNEUMONIDÆ.

E. T. CRESSON (Trans. Amer. Ent. Soc., iv, 153) describes as new from Texas *Ichneumon Belfragei*, *I. propitius*, *Cryptus laticeps*, *C. exulans*, *C. albicollaris*, *C. sororius*, *C. buccatus*, *C. Comalensis*, *Joppidium rubriceps* (Walsh MS.), *J. apicale*, *Phygadeuon Texanus*, *P. intermedius*, *P. timidus*, *Hemiteles conspicuus*, *Mesostenus introitus*, *M. discoidalis*, *M. paludatus*, *M. dejectus*, *M. pertinax*, *M. arvalis*, *M. longicaudis*, *Pimpla*

sanguinipes, *P. petulca*, *P. animosa*, *Mesoleptus bicoloratus*, *M. delicatus*, *M.?* *strigosus*, *M.?* *rotundiceps*, *M.?* *stigmaterus*, *Exochodes Texana*, *Exochus evectus*, *E. Texanus*, *Metopius Hagenii*, *Eretastes bioculatus*, *Trachynotus Texanus*, *Anomalon magniceps*, *A. pallitarse*, *A. orbitalis*, *A. melleum*, *Mesochorus uniformis*, *M. electilis*, *Campoplex expertus*, *C. bellus*, *Limneria corrupta*, *L. illepida*, *L. infesta*, *L. fura*, *L. rivalis*, *Charops tibialis*, *Porizon audax*, *P. orbitalis*, *P. hyalinipennis*, *P. stigmaterus*, *P. facilis*, *P. macer*, *P.?* *agilis*, *P.?* *delicatus*, *Cremastus piceus*, *Eiphosoma Texana*, *Pharsalia* (nov. gen.) *Texanas* — (Braconidæ), *Opius brunneiventris*, *Eubadizon maculiventris*, *Phylax melleus*, *Macrocentrus nuperus*, *M. delicatus*, *Helcon Texanus*, *Ichneutes abdominalis*, *Sigalphus Texanus*, *Chelonus Texanus*, *C. electus*, *C. connectens*, *C. cautus*, *C. laticinctus*, *C. minimus*, *Microdus thoracicus*, *M. Texanus*, *M. nigriceps*, *M. verticalis*, *M. pygmæus*, *Ischius læviventris*, *Agathis exoratus*, *A. meabilis*, *A. rubripes*, *Microgaster croceipes*, *M. maculipennis*, *Bracon epicus*, *B. rugiceps*, *B. simplex*, *B. orbatalis*, *B. radiatus*, *B. faustus*, *B. disjunctus*, *B. mavoritus*, *B. Belfragei*, *B. novitus*, *B. Texanus*, *B. nuperus*, *B. minimus*, *Rogas molestus*, *R. graphicus*, *R. mandibularis*, *R. atricornis*, *R. delicatus*, *R. pilosus*, *Exothecus atriventris*, *E. rugulosus*, *Hormius?* *aciculatus*, *Megischus Texanus*, *Dacnusa læviceps* and *D. minima*.

E. T. CRESSON (Can. Ent., iv, 21, 61, 81, 226) gives a synopsis of *Mesochorus* and describes as new *M. atriventris* from Ill.; *M. luteipes*, N. J.; *M. basalis*, Mass.; *M. Americanus*, Penn., Del., Ill; *M. Totonacus*, Orizaba, Mex.; *M. scitulus*, *M. obliquus*, *M. melleus*, Penn.; and redescribes *M. agilis* Cresson, Col.; *M. vitreus* Walsh, Ill. On p. 61 he describes as new *Pezomachus Pettitii*, Ontario, Can.; *P. gentilis*, Penn.; *P. tantillus*, *P. meabilis*, Ill.; *P. obscurus*, N. J.; *P. Canadensis*, Ontario, Can.; *P. compactus*, Ill.; *P. dimidiatus*, Mass., Ill.; *P. gracilis*, *P. macer*, Penn.; *P. alternatus*, Ill.; *P. Texanus*, Tex.; *P. unicolor*, Del., Mass., Ill. On p. 81 he describes as new *Perilitus niveitarsis*, Mass.; *P. pallitarsis*, N. J.; *P. communis*, Conn., N. J.; *P. intermedius*, Mass.; *P. proximus*, Ill.; *P. vulgaris*, Ill., Tex.; *P. dimidiatus*, N. J., Penn., Ill., Ariz.; *P. humilis*, Ill. On p. 226 he describes as new *Microctonus agilis*, *Euphorus sculptus*, Ill.; *E. mellipes*, N. J., Ill.; *E. scitulus*, Ill.; *Leiophron lævis*, Can.; *Calyptus major*, Can., Va., Ill.; *C. rotundiceps*, Ill.; *C. tibiator*, N. J.; *C. Mexicanus*, Orizaba, Mex.; *Eubadizon lateralis*, Ill.; *E. pleuralis*, Mo.; *E. Americanus*, N. J.; *Ichneutes bicolor*, Mass., and *I. fulvipes*, Ill.

C. V. RILEY (Report Ins. Mo., 43) describes as new *Perilitus indagator*, a parasite on *Acrobasis juglandis* LeBaron. On p. 110 he describes *Cryptus extrematis* Cress.

B. P. MANN (Amer. Nat., vi, 599) describes and figures as new *Bracon letifer* from Brazil, a parasite of *Cemiostoma coffeellum*.

PROCTOTRUPIDÆ.

E. T. CRESSON (Trans. Amer. Ent. Soc., iv, 193) describes as new from Texas *Dryinus atriventris*, *Gonatopus?* *alatus*, *Epyris læviventris*, *E. analis*.

CHALCIDIDÆ.

C. V. RILEY (Report Ins. Mo., 109) describes *Chalcis mariæ* Riley.

B. P. MANN (Amer. Nat., vi, 598) describes as new *Eulophus cemiostomatis* from Brazil, a parasite of *Cemiostoma coffeellum*.

E. T. CRESSON (Trans. Amer. Ent. Soc., iv, 29) gives a synopsis of the American species of *Leucospis*, describing as new *L. bulbiventris*, *L. apicalis*, *L. Mexicana*, *L. Sumichrasti*, Mex.; *L. Texana*, Tex.; *L. Poeyi*, Cuba; *L. affinis* var. *Floridana*, Fla.; *L. Azteca*, *L. dubiosa*, *L. Tolteca*, Mex. Also a synopsis of the American species of *Smicra*, and describes as new *S. Canadensis*, Can.; *S. flebilis*, Mass.; *S. rufofemorata*, Tex.; *S. delumbis*, Mass., Del.; *S. torvina*, Mass., Conn., Ill., Tex.; *S. delira*, *S. mendica*, *S. subobsoleta*, Tex.; *S. Toluca*, *S. Mexicana*, Mex.; *S. sanguiniventris*, *S. bioculata*, Tex.; *S. lecta*, *S. ambigua*, Mex.; *S. arcana*, Del.; *S. lauta*, Mex.; *S. Nortonii*, D. C.; *S. coxalis*, Del.; *S. encausta*, Col.; *S. barbara*, *S. coccinata*, *S. flammeola*, *S. miranda*, Mex.; *S. dorsata*, Tex.; *S. exornata*, *S. compactilis*, *S. Azteca*, *S. lenta*, *S. Tolteca*, Mex.; *S. mirabilis*, Ga., Tex.; *S. juxta*, Mex.; *S. delicata*, Tex. Also a synopsis of the American species of *Chalcis*, and describes as new *C. tegularis*, Tex.; *C. Coloradensis*, Col., and *C. pedalis*, Tex.

P. S. SPRAGUE (Proc. Bost. Soc. Nat. Hist., xiv, 388) announces that he has reared *Pteromalus puparum* from *Pieris rapæ*.

A. S. PACKARD, JR. (Second Ann. Rep. Ins. Mass., 8) describes the habits and transformations (with figures) of *Pteromalus puparum* Linn.

CYNIPIDÆ.

F. G. SANBORN (Proc. Bost. Soc. Nat. Hist., xiv, 140) notes the occurrence of *Cynips quercus-tubicola* O. Sacken and *C. quercus-lanæ* Fitch in the Cumberland Mts., Alabama.

TENTHREDINIDÆ.

E. NORTON (Trans. Amer. Ent. Soc., iv, 77) describes as new *Ptenos* (nov. gen.) *Texanus*, *P. niger*, *P. nigropectus*, Tex.; *Hylotoma McLeayi*, Conn.; *H. consobrina*, Mex.; *Cladius æqualis*, Conn.; *Pachylota varicolor*, Mex.; *Emphytus Bollii*, Tex., *Dictynna Cordoviensis*, *D. politus*, Mex.; *Hemichroa albidovariata*, *H. fraternalis*, Tex.; *Dolerus similis* var. *Yukonensis*, Alaska; *D. distinctus*, *D. coccinifera*, Cal.; *Selandria Sumichrasti*, *S. longipennis*, *S. fascipennis*, Mex.; *S. inæquidens*, *S. albicollis*, Tex.; *S. coccinata*, Mex.; *Lophyrus fulva*, Tex.; *Cephus cinctus*, Col., and *Xyela ænea*, Tex.

A. S. PACKARD, JR. (Second Ann. Rep. Ins. Mass., 15) gives an account (with figures) of the habits of *Selandria rubi* Harris.

LEPIDOPTERA RHOPALOCERA.

C. J. S. BETHUNE (Report of the Ent. Soc. of Ontario, for 1871, p. 82). Insects affecting the cabbage.

C. J. BOWLES (Can. Ent., iv, 102). Notes on *Pieris rapæ*.

A. G. BUTLER (Trans. Ent. Soc., London, 1871, p. 169). Descriptions of New Species of *Pierinæ*.

A. G. BUTLER (Proc. Zool. Soc., 1872, p. 26). A synonymic List of the species included formerly in the genus *Pieris*.

A. G. BUTLER (Cistula Entomologica, iv). Description of new Butterflies from Costa Rica.

WM. COUPER (Can. Ent., iv, 201). Remarks on Lepidoptera collected at Fox Bay, Anticosti, and the north shore of the St. Lawrence, between June 18 and Aug. 1, 1872.

G. M. DODGE (Can. Ent., iv, 217). A new Hesperian.

G. M. DODGE (Can. Ent., iv, 240). Note on *Pieris vernalis*.

W. H. EDWARDS. The Butterflies of North America. Part 10 and the Supplement of this magnificent work have been issued during the year, concluding the first volume.

W. H. EDWARDS (Hayden's Report, Geol. Surv. Montana and adjoining territory, 1871, p. 466). List of Butterflies collected by the Expedition in 1871. (Includes 31 species.)

W. H. EDWARDS (Trans. Am. Ent. Soc., iii, 205). Description of New Species of Diurnal Lepidoptera of the United States.

W. H. EDWARDS (*ibid.*, iv, 61). Description of New Diurnal Lepidoptera of the U. S.

W. H. EDWARDS (*ibid.*, iii, 266). New Species of North American Butterflies.

W. H. EDWARDS (Can. Ent., iv, 238). Notes on some Butterflies and their Larvæ.

A. R. GROTE (Can. Ent., iv, 220). Note on *Hesperia communis* Gr.

A. R. GROTE (*ibid.*, 215). On Mr. Scudder's Systematic Revision of North American Butterflies.

W. C. HEWITSON (Trans. Ent. Soc., London, 1871, p. 165). New Species of Diurnal Lepidoptera from South and Central America.

J. M. JONES (Proc. and Trans. Nova Scotian Inst. Nat. Sciences, iii, 18 and 100). On Nova Scotian Diurnal Lepidoptera. (A list of the Butterflies of Nova Scotia, with notes on their habits, etc.)

J. A. LINTNER (Twenty-third and twenty-fourth Ann. Rep's N. Y. State Cabinet of Nat. Hist., for 1869 and 1870). Entomological Contributions, Nos. 1 and 2. Contains catalogues of the appearance of different species of butterflies, for 1869 and 1870, and a list of those found in New York, besides notes and descriptions noticed below.

THEO. L. MEAD (Can. Ent., iv, 216). Description of a remarkable variety of *Limenitis Misippus*.

CHAS. S. MINOT (Can. Ent., iv, 150). Notes on *Limochores bimacula* Scudd.

L. MITCHELL (Am. Naturalist, vi, 238). Life of *Danaï's Archippus*.

H. W. PARKER (Am. Naturalist, vi, 115). Butterfly Notes, 1871.

H. W. PARKER (*ibid.*, 116). Iowa Butterflies.

W. SAUNDERS (Can. Ent., iv, 121). Notes on *Argynnis Cybele*.

W. SAUNDERS (*ibid.*, 161). Notes on the Eggs and young Larvæ of *Melitæa Harrisii*.

S. H. SCUDDER (Fourth Rep. Peab. Acad. Sciences, p. 24). A Systematic Revision of some of the American Butterflies, with brief notes on those known to occur in Essex Co., Mass. (The genera are all described, except those of Hesperidæ. Mr. Scudder follows the "rule of priority" strictly in the nomenclature of species and larger groups. The new species and genera described are referred to below).

S. H. SCUDDER (Can. Ent., iv, 45). Embryonic Larvæ of Butterflies. (Reprint from the Ent. Monthly Mag. See this Record for 1871).

S. H. SCUDDER (*ibid.*, iv, 73). Abbot's Notes on Georgian Butterflies. (Copied from Abbot's drawings in the British Museum.)

S. H. SCUDDER (*ibid.*, iv, 79). A variety of *Pieris (Gano-ris) rapæ*, unknown in Europe.

S. H. SCUDDER (Am. Naturalist, vi, 513). The Curious History of a Butterfly.

NYMPHALIDÆ.

A. G. BUTLER (Cist. Ent., iv) describes as new *Drucina Leonata* gen. et. sp. nov.; *Oxeoschistus Euriphyle*, *Dynastor Styianus*, *Caligo bubocula*, *Morpho Aquarius*, *M. marinata*, *M. limpida*, *M. hydorina*, *Epiphile grandis*, *Heterochroa demialba*, *Phyciodes fulviplaga*, *Eresia dimorphina* from Costa Rica.

W. H. EDWARDS (Butt. N. A. Pt. 10 and Suppl.) describes and figures *Grapta Satyrus* and *G. Zephyrus*, n. sp.; refigures *Argynnis Diana* and *A. Nokomis* and *A. Leto*, and redescribes *Apatura Alicia* and *Melitæa Chalcedon*.

W. H. EDWARDS (Trans. Am. Ent. Soc., iii, 266) describes as new *Argynnis Helena*, *Phyciodes camillus*, *P. Emissa*, *Erebia Rhodia* and *E. Callias* all from Colorado.

W. H. EDWARDS (Trans. Am. Ent. Soc., iii, 205) describes as new *Phyciodes Orscis*, *P. Canace* from Cal.; *Euptychia rubricata*, Tex.; and *Cænonympha Ampelos* from Oregon.

W. H. EDWARDS (*ibid.*, iv, 61) describes the following new species, *Argynnis Bremnerii*, San Juan Isl.; *A. inornata*, *A. Eurynome*, *A. Meadii*, *Grapta Hylas*, *Satyrus Charon* and *Erebia Meadii* from Cal.

W. H. EDWARDS (Can. Ent. iv, 238) gives notes of an attempt to raise the larvæ of *Argynnis Aphrodite* and *Cybele*.

W. H. EDWARDS (Hayden's Rep. Geol. Surv., Montana, 1871, p. 467) describes as new *Erebia Haydenii* from the Yellowstone.

J. A. LINTNER (23d Ann. Rep. N. Y. State Cabinet Nat. Hist., Appendix D., p. 154) describes the egg and larval stages of *Melitæa Phaeton*, and the larva and pupa of *M. Nycteis*.

THEO. L. MEAD (Can. Ent. iv, 216) describes a variety of *Limenitis Misippus* in which the black cross band on the wings is nearly obsolete, and which therefore resembles more closely *D. Archippus*; also a variety, or perhaps a hybrid, of *L. Ursula*.

L. MITCHELL (Am. Nat. vi, 238) notes the duration of the life of *Danaïs Archippus*, imago, in captivity, the greatest length of life being forty days.

W. SAUNDERS (Can. Ent., iv, 121) describes the larva and pupa of *Argynnis Cybele*; and (*ibid.*, 161) describes the eggs and young larvæ of *Melitæa Harrisii*.

S. H. SCUDDER (4th Ann. Rep. Peab. Acad. Science, p. 24) describes the genera of American Nymphalidæ, restoring the oldest names as far as possible to both genera and species, and giving notes on the habits, immature stages, etc., of many of those species found in Essex Co., Mass. The following new genera are described; *Basilarchia*, including *Disippe*, *Astyanax* (= *Ursula*) and *Arthemis*: *Speyeria*, for *Idulia*: *Charidryas*, for *Nycteis* and *Ismeria*: *Limnæcia*, for *Harrisii*: *Euphydryas*, for *Phaeton*.

S. H. SCUDDER (Am. Nat. vi, 513) describes the curious phenomena presented by the broods of *Argynnis (Brenthis) Bellona*.

ERYCINIDÆ.

W. H. EDWARDS (Trans. Am. Ent. Soc. iii, 205) describes *Charis Nemesis*, sp. nov., from Arizona.

W. C. HEWITSON (Trans. Ent. Soc. London, 1871, 165) describes *Eurygona argentea*, sp. nov., from Nicaragua.

S. H. SCUDDER (4th Rep. Peab. Acad. Sci., 49) characterizes *Polystichtis* Hübn., in which genus he places *Charis borealis* Grote and Rob.

LYCÆNIDÆ.

A. G. BUTLER (Cist. Ent., iv) describes as new *Pandemos nymphidioides* and *Lemonias Adelina*, from Costa Rica.

W. H. EDWARDS (Trans. Am. Soc. Ent., iii. 266) describes as new *Chrysophanus Sirius* and *Thecla Ninus*, from Colorado; *T. Autolytus* and *Lycæna Alcestis*, from Texas; *L. Daunia*, *L. Alce*, *L. Lycea* and *L. rustica*, from Colorado.

W. H. EDWARDS (*ibid.*, iii. 205) describes as new *Thecla Cygnus*, Nevada; *T. costalis*, Texas; *Lycæna Helios* and *Viaca*, Cal.; *L. Ardea* and *Glauccon*, Nevada; *L. Gyas*, Ariz.; *L. Fea*, Tex.; *Chrysophanus Ianthe*, Nevada.

S. H. SCUDDER (4th Rep. Peab. Acad. Sci., 50) describes the American genera of the family, including *Callipareus* gen. nov., for *Thecla humuli* (*Melinus*); *Mitouri*, for *Auburniana* (= *smilacis*); *Incisalia* (*Minot.* MSS.), for *Niphon*, *Augustus* and *Irus* (= *Henrici*); *Erora*, for *læta* (= *Clothilde*); *Glaucopsyche*, for *Lyc. Pembina* Edw.

PAPILIONIDÆ.

C. J. S. BETHUNE (Rep. Ent. Soc., Ontario, Can., 1871, p. 52) describes the cabbage butterflies, *P. rapæ*, *oleracea* and *Protodice*.

C. J. BOWLES (Can. Ent. iv. 102) discusses the appearance and spreading of *Pieris rapæ*; and states that the yellow variety of the species has been known in Europe.

A. G. BUTLER (Trans. Ent. Soc. Lond., 1871, 169) describes and figures *Kricogonia Fantasia* n. sp., from Nicaragua; and describes *Euchloë Limonea* n. sp., Mexico.

A. G. BUTLER (Proc. Zool. Soc., 1872, 26) gives a list of the species of *Pieris* (*sensu lat.*), distributing the American species among the genera *Mylothris*, *Hesperocharis*, *Leptophotia*, *Pieris*, *Daptonura*, *Pontia*, *Synchloë*. No new species described.

G. M. DODGE (Can. Ent., iv, 240) records the capture of two males of *Pieris vernalis*, in Oct. 16 and 19, 1872. which he thinks militates against this form being the spring brood of *P. Protodice*.

W. H. EDWARDS (Butt. N. A., Part 10 and Suppl.) describes and figures *Parnassius Smintheus* in its three varieties *Sayii*, *Behrii* and *Eversmanii*. Also tabulates the differences between *P. clarus* and *P. Clodius*.

W. H. EDWARDS (Tr. Am. Soc. Ent., iii. 266) describes as new *Anthocharis Olympia*, Tex.; and *Colias Meadii*, U. S.

W. H. EDWARDS (*ibid.*, 205) describes *Anthocharis Hyantis* sp. nov., from Cal.

W. H. EDWARDS (*ibid.*, iv, 61) describes *Colias Astræa* sp. n., Yellowstone; *Anthocharis Julia* n. sp., Col., also *Neophasia Menapia*, Feld. ♀.

J. A. LINTNER (Rep. N. Y. State Mus. Nat. Hist., 1870, 109) records the first appearance of *Pieris rapæ* in Albany, July 24, 1870.

J. A. LINTNER (*ibid.*, for 1869, 158) describes eggs and larvæ of *Pieris oleracea*.

S. H. SCUDDER (4th Rep. Peab. Acad. Sci., 58) characterizes the American genera of the family.

S. H. SCUDDER (Can. Ent. iv, 79) describes the yellow variety *Pieris* (*Ganoris*) *rapæ*, which he names *Novangliæ* Scudd., and states that it is unknown in Europe. (See notes by Mr. Bowles, recorded above.)

A. G. BUTLER (Cist. Ent., iv) describes as new *Euterpe diamorphites*,

J. M. N. H.

Catantia Actinotis, *Mylothris Alethina*, *Callidryas intermedia*, *Dismorphia Sororna*, *D. Hagaresa*, *D. lubina*, *D. viridifascia*, *Papilio orabitis*, *P. Latitia*, *P. vulneratus* and *P. Clusoculis*, from Costa Rica.

HESPERIDÆ.

G. M. DODGE (Can. Ent., iv, 217) describes *Hesperia Illinois*, n. sp., from Bureau Co., Ill.

W. H. EDWARDS (Trans. Am. Ent. Soc., iii, 266) describes as new *Thymeticus Hylax*, *Pamphila Draco*, from Col.; *P. Licinus*, *P. Attalus* and *Hesperia Horus* and *H. Eos*, from Texas; *H. Dakota*, from Col. (*ibid.*, 205) *Syrictus Oceanus*, Arizona; *Stercoptes Shada*, Kodiak; *Heteropterus Arene*, Arizona; *Hesperia Procris*, *H. Tamenund*, Texas; and *H. Ophis*, from Florida.

A. R. GROTE (Can. Ent., iv, 220) states that *Hesperia communis* Gr. is identical with *H. tessellata*, Scudd.

W. C. HEWITSON (Tr. Ent. Soc. Lond., 1871, 165) describes as new *Pyrrhopyga Crida*, from Nicaragua.

J. A. LINTNER (24th Rep. N. Y. State Mus. Nat. Hist., 1870, 109) gives notes on the habits of *Nisoniades Lucilius*.

J. A. LINTNER (*ibid.*; 23d Rep., 1869, 162) describes and figures *Nisoniades Icelus* Lint., *N. Lucilius* Lint., and *N. Ausonius* n. sp.

C. S. MINOT (Can. Ent., iv, 150) describes the male of *Limochores bimacula* Scudd. (= *Hesp. Acanoetus*).

S. H. SCUDDER (4th Rep. Peab. Acad. Sci., 67) gives a list of the American Hesperidæ, and names, but does not describe, thirty-two new genera. The following new species are described; *Pyrrhopyga Venezuela*, Venezuela; *P. chalybea*, Mex.; *Dysenius cruentus*, gen. et sp. nov., Guatemala; *Erycides Texana*, *E. sanguinea*, Texas; *Thymele vitreus*, Venezuela; *T. Sumichrastii*, Tehuantepec; *T. Domingo*, Hayti; *T. Montezuma*, Tehuantepec; *Epargyreus Orizaba*, Guatemala; *Thorybes* gen. nov., Nevada, Cal.; *Pholisora* gen. nov. *Azteca*, Mex.; *Leucoscirtes* (gen. nov.), *nivea*, Tehuantepec, Guatemala; *Hesperia tessellata*, Penn., Md., Ia., Fla., Ala., Tex., Mo. and Cal.; *Callimorphus juvenis*, gen. et sp. nov., Panama; *Potanthus Californicus*, gen. et sp. nov., Cal.; *Amblyscirtes Tolteca*, gen. et sp. nov., Tehuantepec; *Ocytes Seminole*, gen. et sp. nov., Fla. to Tex.; *Pamphila Columbia*, Cal.; *Ochlodes Sonora*, gen. et sp. n., Cal.; *Hedone*, gen. nov. *præceps*, Tehuantepec; *Orono*, northern states; *Lerodea Inca* gen. et sp. nov., Peru.; *Phrenes Hecobolus* gen. et sp. nov., Tehuantepec; *Perichares marmorata* gen. et sp. nov., Venezuela; *Lerema Pattenii* gen. et sp. nov., Guatemala.

A. G. BUTLER (Cist. Ent., iv) describes as new *Carystus gemmatus*, from Costa Rica.

LEPIDOPTERA HETEROCERA.

R. H. STRETCH. Illustrations of the Zygaenidæ and Bombycidæ of North America. Vol. i, parts 1-7, with colored plates. In this important work the author figures all the spe-

cies and sometimes remarkable varieties of these two families to which he has access, with interesting remarks on the habits and transformations of several of the Californian species. He also notices the extreme tendency to variation in Californian Lepidoptera. We shall merely notice the original matter. This deserves mention as being the first entomological work printed, illustrated and published in California.

B. CLEMENS. The Tineina of North America, being a collected edition of his writings on that group of insects, with notes by the editor, H. T. Stainton, London, 1872, 8vo, pp. 282. We shall only refer to certain unpublished matter contained in this valuable reprint, and to Mr. Stainton's unpublished notes. The work contains several unpublished woodcuts of venation. X

J. A. LINTNER. Entomological Contributions (Appendix to 23d Ann. Report N. Y. State Cabinet of Natural History, for the year 1869, published 1872). This part contains the following articles on Heterocera: Biography of *Hemileuca Maia* (Drury); Description of a new Sphinx; List of Sphingidæ occurring in the State of New York; Dates of Collection of New York Heterocera; List of North American Lepidoptera contained in "Species Général des Lépidoptères par A. Guenée;" Notes on *Cucullia intermedia* Speyer.

The same, No. II (from the 24th Ann. Report, etc., for the year 1870, published in 1872), contains articles on the following subjects relating to the Heterocera: On the Larva and Imago of *Sesia diffinis* Harris; Transformations of *Sesia Buffaloensis* Gr.-Rob.; On the Larva and Pupa of *Thyreus Abbotii* Swainson; On the Larva of *Philampelus Achemon* (Drury); *Smerinthus geminatus* Say, and its supposed varieties; Transformations of *Daremma undulosa* Walk.; Notes on *Platarctia Parthenos* (Harr.); Notes on *Euprepia Americana*; Notes on *Euchætes Egle* (Drury); Transformations of *Lagoa crispata* Pack.; Transformations of *Hyperchiria Io* (Fabr.); Transformations of *Eacles imperialis* (Drury); Larval Notes on *Anisota senatoria* (Smith); Dates of Collection of some Heterocera for 1870.

A. SPEYER (Entomological Contributions, by J. A. Lintner, I). On *Cucullia intermedia*, n. sp., and *C. lucifuga* W. V.

A. R. GROTE and C. T. ROBINSON (Trans. Amer. Ent. Soc. iii, 176). Description of North American Lepidoptera, No. 5.

A. R. GROTE (Trans. Amer. Ent. Soc. iv, 1). On the North American species of *Catocala*.

A. R. GROTE (Trans. Amer. Ent. Soc. iv, 20). Descriptions of North American Noctuidæ, No. 1, p. 89, No. 2.

H. STRECKER. Lepidoptera, Rhopaloceres and Heteroceres, indigenous and exotic; with descriptions and colored illustrations. 4to, one plate.

C. V. RILEY. Fourth Annual Report on the Noxious, Beneficial and other Insects of Missouri.

W. LEBARON. Second Annual Report on the Noxious Insects of Illinois.

The Abbe PROVANCHER; editor of *Naturaliste Canadien*.

T. GLOVER (Monthly Report of the Department of Agriculture). Entomological Record.

A. S. PACKARD, Jr. (Fourth Ann. Rep. Peabody Acad. Science). New North American Moths; Zygænidæ and Bombycidæ.

Lord WALSHINGHAM (*American Naturalist*, vi, 275). Directions for collecting Microlepidoptera.

B. P. MANN (*American Naturalist*, vi, 332, 596). The White Coffee Leaf Miner.

SPHINGIDÆ.

J. A. LINTNER (Ent. Contr., i) describes as new *Ellema pineum* (Pl. 8, figs. 12 ♂, 13 ♀). On p. 40 he gives a list of Sphingidæ occurring in the State of New York. In No. 2 he describes the transformations of *Sesia diffinis* Harr., *S. Buffaloensis* G. and R., *Thyreus Abbotii* Swain., *Philampelus Achemon* (Drury), *Smerinthus geminatus* Say and its supposed varieties, and *Daremma undulosa* Walk.

A. R. GROTE (Trans. Amer. Ent. Soc., iii, 184) describes as new *Aellopus Blainii* from Cuba.

ZYGÆNIDÆ.

R. H. STRETCH (Ill. Zygænidæ and Bombycidæ N. A.) gives a synopsis of the twelve known species of *Alypia*, and describes as new from California *Alypia Brannani* (Pl. 1, fig. 8 ♂); *A. similis* (Pl. 1, fig. 5 ♀); *A. lunata* (Pl. 1, fig. 6 ♀). On p. 22 he states that *Scepsis Packardii* Grote is a synonyme of *S. fulvicollis* (Hübner). On p. 25 he gives

a synopsis of the species of *Ctenucha*, and describes as new from California *Ct. brunnea*. On p. 147 he tabulates the three species of *Endryas*, and describes as new *E. brevipennis* (Pl. 7, figs. 3, 4) Cal.

A. S. PACKARD, JR. (4th Rep. Peab. Acad. Sci.) describes as new *Lycomorpha miniata* from South California and *L. Palmerii* from Arizona.

BOMBYCIDÆ.

R. H. STRETCH (Ill. Zyg. and Bomb. N. A.) gives a synopsis of the species of *Cisthene*. He says "it seems not unlikely" that *Euphanessa mendica* must be removed to the Geometridæ, as the larva has been found by Mr. Saunders to be a geometer, having but two pairs of prop legs. On p. 58 he discusses the limits of the species of *Utetheisa*. He then gives a synopsis of the species of Callimorpha. *Kodiosoma* is characterized as new, and *K. fulva*, n. sp. (Pl. 2, fig. 7), *K. nigra* (Pl. 2, fig. 8) Cal., *K. tricolor* (Pl. 2, fig. 5) Nevada, described from California; *K. Eavesii* (Pl. 2, fig. 6) Nevada, described from California and Nevada. A synopsis of *Arctia* is given on p. 74, with descriptions of the following new species: *A. Behrii* (Pl. 3, fig. 12 ♂, 11 ♀); *A. Bolanderi* (Pl. 3, fig. 13); and *A. Edwardsii* (Pl. 3, fig. 9) California. On p. 83 he gives a detailed description of the larva of *Arachnis picta* Pack. On p. 87 he tabulates the species of *Halesidota*, and describes the larva of *H. Edwardsii* Pack. He thinks *Phryganidia* should be removed from the Psychidæ, in which it was placed by Packard, to the Zygænidæ near *Procris* and *Ctenucha*, since *Heterogynis*, its ally, has been removed by many European writers to that group. He describes its larva and pupa. On p. 103 he describes the larva and cocoon of *Halesidota Agassizii* Pack. On p. 135 he describes as new *H. sobrina* (Pl. 6, fig. 10 ♂), Cal. He also describes as new *Sthenopsis Behrensii* (Pl. 4, fig. 6) Cal. and *Sthenopsis Montana* (Pl. 4, fig. 7), from Cal. On p. 107 he tabulates the four species of *Hemileuca*, and describes as new *H. Nevadensis* (Pl. 4, fig. 10 ♂), Nevada, redescribes *Drepana siculifer* Pack. (Pl. 4, fig. 11 ♀) Cal., *Gastropacha Mildei* (Pl. 4, fig. 12) Cal. On p. 115 he tabulates the species of *Notodonta*, and describes as new *N. Californica* (Pl. 4, fig. 5) Cal., with an account of the larva. On p. 118 he describes as a new genus *Leptarctia*, tabulating the species, and describing as new *L. dimidiata* (Pl. 5, fig. 7, 8, 9, 10) Cal. On p. 130 he tabulates the species of *Spilosoma* and describes as new *S. latipennis* (Pl. 6, fig. 5 ♀), probably New York. On p. 144 the ♀ of *Euleucophæus tricolor* Pack., from New Mexico, is described and figured (♂ also).

J. A. LINTNER (Ent. Contr., i) gives an elaborate account of the transformations of *Hemileuca Maia* (Drury, Pl. 8, fig. 1). In No. II he gives an account of the transformations of *Platarctia Parthenos* (Harr.), *Euprepia Americana* (Harr.), *Euchætes egle* (Drury), *Lagoa crispata* Pack., *Hyperchiria Io* (Fabr.), *Eacles imperialis* (Drury), *Anisota senatoria* (Smith).

H. STRECKER (Lepidoptera, etc.) describes and figures *Platysamia Gloveri* n. sp. from Arizona, and notes the distribution of the varieties of *Euchætes egle*.

C. V. RILEY (Fourth Ann. Rep. Ins. Mo.) gives a full account of silk worms, giving the histories, fully illustrated, of *Bombyx mori* (Linn.), *Platysamia Cecropia* (Linn.), *Samia Cynthia* (Drury), *Callosamia Promethea* (Drury), *Arctias Luna* (Linn.), *Telea Polyphemus*

(Linn.), *Antheræa Yama-maï* G.-Menn. and *A. Pernyi* G.-Menn.; also of *Ecpantheria scribonia* Stoll and *Arctia Isabella* Smith.

PROVANCHER (Nat. Can., 283) gives an account of *Samia Columbia* Smith, which he thinks may be only a variety of *S. Cecropia* (Linn.).

A. R. GROTE and C. T. ROBINSON (Trans. Amer. Ent. Soc., iii, 176) describe as new *Vanessodes* (nov. gen.) *clarus*, from Texas, and *Lithosia cephalica*, Texas.

A. R. GROTE (Trans. Am. Ent. Soc., iii, p. 187) describes as new *Nelphè coccinipes* from Cuba.

A. S. PACKARD, Jr. (4th Rep. Peab. Acad. Sci.) describes as new *Cisthene grisea*, *Clemensia umbrata*, *Leucartia permaculata*, *Drepana siculifer*, from California, and *Hemileuca Juno*, from border of Arizona and Sonora, *Euleucophæus* (nov. gen.) *tricolor*, New Mexico, *Gloveria* (nov. gen.) *Arizonensis*, border of Arizona and New Mexico, and *Gastropacha Californica* Cal. He also notes the occurrence of *Nemephila petrosa* Walk. in Southern California; refers *Platarctia Scudderii* Pack. to the genus *Nemephila*, and regards *Leucartia Californica* as the same as *L. acraea* (Smith). He also records the occurrence of *Halesidota caryæ* (Harr.) and *Coloradia Pandora* Blake on the border between Arizona and New Mexico.

B. CLEMENS (Tineina N. Amer. 5) gives an account of the means by which *Attacus Cecropia* effects its delivery from its cocoon.

NOCTUIDÆ.

J. A. LINTNER (Ent. Contr. i, 81) gives some notes on the larva of *Cucullia intermedia* Speyer.

A. SPEYER (Lintner's Ent. Contr., I, 85) describes as new *Cucullia intermedia* (Pl. 8, figs. 5, 6,) from N. York.

W. LEBARON (2d Ann. Rep. Ins. Ill.) gives an illustrated account of *Gortyna nitela* Guen.

A. R. GROTE (Trans. Am. Ent. Soc., iii, p. 183) describes as new *Crino dissimilis* from Cuba.

A. R. GROTE (Trans. Amer. Ent. Soc., iv, 1) describes most of the species of *Catocala* and describes as new *C. resecta* from Middle States, *Catocala flebilis*, *C. coccinata*, *C. habilis*, Penn., *C. abbreviata*, *C. Frederici*, Texas, *C. lineella*, southeastern states, *C. Robinsonii*, Penn.

A. R. GROTE (Trans. Amer. Ent. Soc., iv, 20) describes as new *Hadena* (Mamestra) *badistriga*, Canada, N. Y., *Emmelia* (Agrophila) *apicella*, *Eutoreuma* (nov. gen.) *tenuis*, *Matigramma pulverilinea*, *Pleonectyptera* (nov. gen. of which *Pleon. pyralis* is the type) *P. geometralis*, *P. phalænalis*, central Ala.

A. R. GROTE and C. T. ROBINSON (Trans. Amer. Ent. Soc., iii, 179, Pl. 2) describe as new *Leucania rubripennis*, Texas, *Acronycta dissecta* and *A. Verrilli*, Mass.; *A. luteicoma*, Atlantic district; and *A. funeralis*; *Heliothis citrinellus*, Texas; *Anthæcia Thoreaui*, Atlantic district; *Tarache cretata*, Texas.

PHALÆNIDÆ.

W. LEBARON (2d Ann. Rep. Ins. Ill.) gives an illustrated account of the habits of *Anisopteryx vernata* (Peck).

A. R. GROTE and C. T. ROBINSON (Trans. Amer. Ent. Soc., iii, 182) describe as new *Fidonia fimetaria*, Texas.

PYRALIDÆ.

C. V. RILEY (Fourth Ann. Rep. Ins. Mo.) gives an account of the habits of *Acrobasis nebulo* (Walsh) with illustrations, and describes as new *Pempelia Hammondi*, and *A. juglandis* LeB. (with fig.).

C. V. RILEY (Amer. Nat., vi, 765) publishes a note on the fertilization of *Yucca* by *Pronuba yuccasella*, n. sp.

HERRICH-SCHAEFFER (C. B. Ver. Regensburg, xxv) describes as new from Cuba:—*Asopia tripartitalis*, *Hellula simplicialis*, *Deuterollyta majuscula*, *Botys graminialis*, *B. geminatalis*, *B. germanalis*, *B. episcopalis*, *B. glirialis*, *B. gracilalis*, *B. narपालis*, *B. semifulvalis*, *B. subviolalis*, *B. subaurantialis*, *B. subhyalinialis*, *B. tilieralis*, *B. hesperialis*, *B. idonealis*, *B. dilutalis*, *B. illepidalis*, *B. impeditalis*, *B. impulsalis*, *B. impuralis*, *B. infixalis*, *B. lualis*, *Phakellura marianalis*, *Cænostola quadrifenestralis*, *Lineodes gracilalis*, *L. multisignalis*, *Desmia sertorialis*, *D. impuralis*, *D. quadrinotalis*, *D. personalis*, *D. pervialis*, *Cataclysta minimalis*, and *C. plusialis*.

W. LEBARON (2d Ann. Rep. Ins. Ill.) gives an illustrated account of *Acrobasis nebulo* (Walsh) and *A. juglandis* LeB.

T. GLOVER (Ent. Record) gives a brief illustrated notice of *Plutella xylostella* (Linn.), and p. 304, *Anarsia purinella* Clem.

A. R. GROTE (Trans. Amer. Ent. Soc., iv, 23) describes as new *Hypena toreuta*, middle states, *Renia brevirostralis*, Penn., Ala., *R. larvalis*, Penn., Texas, *R. restrictalis*, Penn., *R. centralis*, West Va., *R. pastoralis*, Penn., *R. Belfragei*, Texas.

In No. 2 he describes as new *Marasmalus ventilator*, N. Y., Mass., *Phyprosopus* (nov. gen.) *callitrichoides*, N. Y., Texas, *Madopa interpuncta* Grote, *Bleptina inferior*, Ala., Texas, *Herminia lævigata*, Penn., Va., West Va., *H. marcidilinea*, Penn., Ala., *H. obscuripennis*, Central Ala., *H. ochreipennis*, West Va., *H.* (subgenus *Philometra*) *serraticornis*, Penn., Va., *H. longilabris* Penn., Va., *Renia alutalis*, Penn., *R. plenilinealis*, Penn., *Hypena citata*, Alabama, *H. evanidalis*, eastern and middle states, var., *subrufalis* of *H. erectalis* Guen. Atlantic states, *H. sordidula*, Penn., *H. profecta*, Penn., *Tortricodes bifidalis*, N. Y. to Texas, *T. indivisalis*, N. Y., Ala. with new descriptions of previously known species.

TORTRICIDÆ.

C. V. RILEY (Fourth Rep. Ins. Mo.) gives information of economic value relating to *Carpocapsa pomonella* (Linn.) and describes as new *Tortrix cinderella*, with figures and notes on its habits, and notices the habits of *Tortrix malivorana* LeB.

W. LEBARON (2d Ann. Rep. Ins. Ill.) gives a note on *Tortrix malivorana* LeB.

TINEIDÆ.

C. V. RILEY (Fourth Rep. Ins. Mo.) figures and notices the habits and transformations of *Bucculatrix pomifoliella* Clem. and *Holococera glandulella* Riley.

B. P. MANN (Amer. Nat., vi, 332, 596) gives an exhaustive account (with figures) of the habits and transformations of *Cemiosstoma coffeelum* of Brazil.

V. T. CHAMBERS (Amer. Nat., vi, 489) remarks on the synonymy of certain species of *Cemiosstoma*.

B. CLEMENS (Tineina N. Amer. 8, 16) describes the transformation

of *Lithocolletis rabinecella*; p. 19, *Antispila nyssæfaliella*; p. 25 *Phylacnistis vitigenella*; p. 26 *Aspidisca splendariferella*; p. 34 gives a synopsis of the groups of Tineina.

H. T. STAINTON (Tineina N. Amer.) gives editorial notes on certain N. Amer. moths of this family.

V. T. CHAMBERS (Can. Ent., iv) describes as new *Gracilaria upatoriella*, *G. plantaginisella*, *G. 12-lineella*, *G. (Coriscium?) albinatella*, *G. salicifoliella*, *G. Packardella*, *G. purpuriella*, *G. juglandiella*, *Hyponomeuta euonymella*, *H. longimaculella*, *Heribeia? incertella*, *Anarsia obliqui-strigella*, *Ecagora* (afterwards p. 192 placed in *Gelechia*) *difficilisella*, *Parasia apici-strigella*, *Gelechia tephriasella*, *G. palpiannulella*, from Kentucky; *Parasia griseælla*, Canada; *Strobisia Aphroditeella*, *S. venustella*, *Depressaria cryptolechiella*, *D. ? dubitella*, *D. albisparsella*, *D. bistrigella*, Kentucky; *D. Rileycella*, Ky. and Canada; *D. fuscoochrella*, *D. fuscoluteella*, Ky.; *D. obscurusella*, Ky. and Canada; *D. pseudacaciella*, Ky.; *D. bimaculella*, *D. cercerisella*, *D. pallidochrella*, *D. versicolorella*, *D. bicosto-maculella*, *D. querciella*, Hagnö (nov. gen.) *jaginnella*, *Telphusa curvistrigella*, *Cirrha* (nov. gen.) *platanella* (= *Depressaria albisparsella*), *Adrasteia Alexandriacella*, *A. fasciella*, *Gelechia thoraceochrella*, *G. obscurella*, *G. fuscopulvella*, *G. fuscomaculella*, *G. quercinigracella*, *G. grisella*, *G. albistrigella*, *G. suffusella*, *G. discomaculella*, *G. aurimaculella*, *G. ? curvilineella*, *G. physaliella*, *G. quercivorella*, *G. variella*, *G. ? quinqueannulella*, *G. bidiomaculella*, *G. œquepulvella*, *G. similiella*, *G. rubensella*, *G. disco-ocellella*, *Agnippe bicolorella*, *A. fuscopulvella*, *Adrasteia querciella*, *Venilia* (nov. gen.) *albapalpella*, *Begæ* (nov. gen.) *costolutella*, *Ypsolophus eupatoriella*, *Y. Reedella*, *Y. quercipominella*, *Y. querciella*, *Y. caryæfoliella*, *Y. straminiella*, *Sagaritis* (nov. gen.) *gracilella*, from Kentucky, with notes on habits of these and other species.

DIPTERA.

H. LOEW (Berliner Entomol. Zeitschr. xvi, 49). "Diptera Americæ Septentrionalis Indigena." Besides the description of one hundred new species of North American Flies, an index to the whole ten centuries is given, besides a few notes on various genera and species treated in the work, as well as several typographical corrections. The new species are enumerated below.

R. OSTEN SACKEN (Amer. Entomol. Soc., iii, 345). Biographical Notes on Diptera, No. 2.

A. S. PACKARD, Jr. (Second Annual Rep. on the Injurious and Beneficial insects of Mass.). Notes on the Onion-fly, and

a Tachinid parasite of *Pieris rapæ*. (Reprinted also in Bulletin Essex Inst., iv, 8.)

S. H. SCUDDER (Am. Nat., vi, 665). Fossil Insects from the Rocky Mountains. Refers to the fossil Diptera collected by various exploring parties, numbering 65 specimens of 13 species. None are described or named.

C. V. RILEY (Fourth Rep. on the Insects of Missouri) mentions the Tachinæ referred to below.

T. GLOVER (Monthly Rep. Dep. Agriculture). Entomological Record.

TIPULIDÆ.

H. LOEW (Ber. Ent. Zeit., xvi) describes as new, *Dixa vinosa*, *Tipula præcisa*, *Ctenophora angustipennis*.

CECIDOMYIDÆ.

R. OSTEN SACKEN (Trans. Amer. Ent. Soc., iii, 345) describes all the stages of *Diplosis resinicola* sp. n., found in resin lumps on *Pinus inops*. Also the gall and larva of *Cecidomyia cerasi-serotinæ* sp. n., from the wild cherry. Records capture of *Asphondylia monacha* O. S., in Tarrytown, N. Y., June 17, 1871.

STRATIOMYIDÆ.

H. LOEW (Ber. Ent. Zeit., xvi) describes the following new species, *Odontomyia arcuata*, *O. plebeja*, *O. nigerrima*, *Stratiomyia insignis*, *S. constans*, *Clitellaria lata*, *Nemotelus glaber*, *Hermetia chrysopila*.

TABANIDÆ.

H. LOEW (Ber. Ent. Zeit., xvi) describes *Chrysops gigantulus* sp. n.

LEPTIDÆ.

H. LOEW (Ber. Ent. Zeit., xvi) describes *Alterix varicornis*, *Chrysopila modesta*, *Triptotricha* (gen. nov.) *lauta*, *Leptis incisa*, new species.

CYRTIDÆ.

H. LOEW (Ber. Ent. Zeit., xvi) describes as new, *Eulonchus tristis*, *Oncodes eugonatus* and *O. melampus*.

MIDAIDÆ.

H. LOEW (Ber. Ent. Zeit., xvi) describes *Midas tenuipes*, sp. n.

ASILIDÆ.

H. LOEW (Ber. Ent. Zeit., xvi) describes as new, *Dioctria resplendens*, *Echthopoda formosa*, *Leptogaster brevicornis*, *Blax* (gen. nov.) *bellus*, *Pygostylus æmulator*, *Diognites symmachus*, *Microstylum morosum*, *Steno-*

pogon brevisculus, *S. gratus*, *S. obscuriventris*, *S. univittatus*, *Heteropogon lautus*, *H. phænicurus*, *Discocephala calva*. Loew also discusses the characters of *Blax* (gen. nov.), *Taracticus* (gen. nov.) and *Pygostylus*, genera of *Dasytinae*.

THEREUIDÆ.

H. LOEW (Ber. Ent. Zeit. xvi) describes *Thereua fucata*, *T. melaneura* and *Xestomyza planiceps*, new species.

BOMBYLIDÆ.

H. LOEW (Ber. Ent. Zeit. xvi) describes as new, *Aphæbantus* (gen. nov.) *cervinus*, *Leptochilus* (gen. nov.) *modestus*, *Bombylius albicapillatus*, *B. semirufus*, *Sparnopolius brevicornis*, *Ploas atratula*, *P. nigripennis*, *P. obesula*, *Allocotus* (gen. nov.) *Edwardsii*, *Phthiria egerimans*.

SYRPHIDÆ.

H. LOEW (Ber. Ent. Zeit., xvi) describes as new, *Spilomyia longicornis*, *Myiolepta ærea*, *M. nigra*, *M. strigilata*, *Brachypalpus cyanogaster*, *B. frontosus*, *Helophilus polygrammus*, *Microdon baliopterus*, *Ceria tridens*.

PIPUNCULIDÆ.

H. LOEW (Ber. Ent. Zeit., xvi) describes *Pipunculus fasciatus* and *P. subvirescens*, new species.

TACHYDROMIDÆ.

H. LOEW (Ber. Ent. Zeit., xvi) describes *Drapetis divergens*, *gilvipes* and *unipila*, new species.

DOLICHOPODIDÆ.

H. LOEW (Ber. Ent. Zeit., xvi) describes as new, *Paraclius pumilio*, *Pelastoneurus furcifer* and *Hydrophorus cerutias*.

TACHINIDÆ.

H. LOEW (Ber. Ent. Zeit., xvi) describes *Blepharopeza adusta* and *Gymnosoma filiola*, new species.

C. V. RILEY (4th Rep. Ins. Mo.) describes *Exorista phycitæ* sp. n. LeBaron, parasitic on *Phycita nebula* Walsh.; names, but does not describe, *Tachina (Masicera) anonyma* sp. n. parasitic on *Telea Polyphemus*, and also he thinks on six other moths or butterflies. He also mentions *Exorista leucaniæ* Kirk., var. *cecropiæ* Riley, as parasitic on *Cynthia lecropia*.

A. S. PACKARD, Jr. (2nd Report Ins. Mass.) figures a Tachinid parasite of *Pieris rapæ*.

ANTHOMYIDÆ.

H. LOEW (Ber. Ent. Zeit., xvi) describes *Homalomyia femorata* Loew, and the following new species, *H. tetracantha*, *Cænusia calopyga*, *C. modesta*, *C. nivea* and *Schænomyza dorsalis*.

CORDYLURIDÆ.

H. LOEW (Ber. Ent. Zeit., xvi) describes as new, *Cordylura capillata*, *C. fulvibarba*, *C. lutea* and *C. vittipes*.

HELOMYZIDÆ.

H. LOEW (Ber. Ent. Zeit., xvi) describes as new, *Blepharoptera discolor* and *pectinata*.

SCIOMYZIDÆ.

H. LOEW (Ber. Ent. Zeit., xvi) describes *Sciomyza tenuipes* and *trabeculata*, new species.

SAPROMYZIDÆ.

H. LOEW (Ber. Ent. Zeit., xvi) describes *Sapromyza macula* and *Lauxania eucephala*, new species.

EPHYDRIDÆ.

H. LOEW (Ber. Ent. Zeit., xvi) describes *Notiphila pulchrifrons*, new species.

DROSOPHILIDÆ.

H. LOEW (Ber. Ent. Zeit., xvi) describes *Drosophila obesa* and *sigmoides*, new species.

OSCINIDÆ.

H. LOEW (Ber. Ent. Zeit., xvi) describes as new *Crassiseta eunota*, *Hippelates eulophus*, *H. pusio*, *Opetiophora* (gen. nov.) *straminea*, *Siphonella latifrons*, *Chlorops* (*Centor*) *procera*, *C.* (*Anthracophaga*) *maculosa*; *C.* (*Diplotoxa*) *alternata*, *confluens*, *Gundlachii*, *microcera*, *nigricans*, and *pulchripes*, *C.* (*Chlorops*) *mellea*.

COLEOPTERA.

JOHNSON PETIT (Canadian Entomologist, 1873, pp. 3-6). Description of the wheat wire-worm (larva of *Agriotes mancus* Say).

List of Coleoptera taken at Grimsby (continued from 1871) p. 12.

DE BONVOULOIR. Monog. Eucnemides. (Ann. Ent. Soc. France, Cahier i, 1870, 1871, Cahier ii, 1872.)

C. J. S. BETHUNE (Can. Ent.) pp. 31, 52, 93, 111, 151, 175, 196. Reprint of Kirby's "Fauna Boreali-Americana."

DR. SUFFRIAN (Stettin Zeitung, 1872, p. 11). Synonymische Miscellaneen.

A. MATTHEWS. Descriptions of two new species of *Amphizoa* discovered in Vancouver's Island by Mr. Jos. Beauchamp Matthews. (Cistula Entomologica, part v, London, 1872.)

J. L. LECONTE, M.D. (Proc. Zool. Soc. Lond., Nov., 1872). On Platypsyllidæ, a new family of Coleoptera.

X G. H. HORN, M.D. (Trans. Am. Ent. Soc., 1872.) Synopsis of the Malachiidæ of the United States, pp. 109-127.

The Brenthidæ of the United States, pp. 127-159.

Revision of species of *Lebia* of the United States, pp. 130-142.

Description of some new North American Coleoptera, pp. 143-152.

S. H. SCUDDER (Amer. Nat. vi, 665). Fossil Insects from the Rocky Mountains. Twelve species of Coleoptera are cited.

A. S. PACKARD, JR. (Memoirs Peab. Acad. Sci., iii, 7). Embryological Studies on Hexapodous Insects. In this paper the author describes and figures the embryology of *Attelabus rhois*, *Telephorus fraxini*, *Gastrophysa polygona* and *Mysia 13-punctata*.

A. S. PACKARD, JR. (Ann. Rep. Peab. Acad. Sci. for 1871). List of the Coleoptera collected in Labrador. The species were identified by Drs. Horn and LeConte. The list is accompanied with the dates and special localities.

A. S. PACKARD, JR. (2d. Ann. Rep. Injurious Insects of Mass.). The habits of several beetles are noticed.

L. W. SCHAUFUSS (Nunquam Otiosus, Sept., 1870, pp. 1-12). Notes on the genus *Pleocoma* Lec.

CICINDELIDÆ.

G. H. HORN (*loc. cit.* p. 143). *Omus Lecontei* n. sp. Cal.

CARABIDÆ.

G. H. HORN (*loc. cit.* p. 143). *Cychrus rugiceps*, n. sp. Cal. (p. 131)

Lebia majuscula. Chaud. Tex. Penins. Cal. (p. 139) *L. miranda* n. sp., Ariz.; *L. Spraguei* n. sp., Tex.

AMPHIZOIDÆ.

A. MATTHEWS. *Amphizoa Lecontei*, *A. Josephi*, Vancouver Island.

HYDROPHILIDÆ.

G. H. HORN (*loc. cit.* p. 144). *Limnocharis* (n. g.,) *piceus* n. sp., Cal.

LEPTINIDÆ.

G. H. HORN (*loc. cit.* p. 145). *Leptinus validus* n. sp., Hudson's Bay.

PLATYPSYLLIDÆ.

J. L. LECONTE (*loc. cit.* pp. 799-804). PLATYPSYLLIDÆ, new family of Coleoptera founded on *Platypsylla castoris* Ritsema, an insect parasitic on the North American beaver; illustrated by an octavo plate.

TROGOSITIDÆ.

G. H. HORN (*loc. cit.* p. 146). *Pityophagus rufipennis* n. sp., Oregon.

COLYDIIDÆ.

G. H. HORN (*loc. cit.* p. 146). *Deretaphrus Oregonensis* n. sp., Oregon.

SCARABÆIDÆ.

L. W. SCHAUFUSS (*loc. cit.* p. 5). *Pleocoma Staff*; p. 11, *P. hirticollis*, both from California.

EUCNEMIDÆ.

DE BONVOULOIR (Monog. 1870). *Deltometopus* (n. g., p. 171) *ereptus* n. sp., p. 185, Louisiana; *Dromæolus sejunctus* n. sp., p. 266, Canadaigua; *D. Marseuli* n. sp., p. 268, New York; *D. novitius* n. sp. p. 270, Louisiana.

DE BONVOULOIR (Monog. 1872). *Fornax molestus* n. sp., p. 376, U. S.; *Entomophthalmus* (n. g., p. 513) *pallens*, p. 518, Tennessee; *Microrhagus oblitus*, n. sp., p. 552.

G. H. HORN (*loc. cit.* p. 147). *Phænocerus Americanus* n. sp., Vancouver.

ELATERIDÆ.

G. H. HORN (*loc. cit.* p. 147). *Cardiophorus mimeticus* n. sp., Cal.; *Agriotes Thevenetii* n. sp., Cal.; *Limonius Crotchii* n. sp., Oregon.

LAMPYRIDÆ.

A. S. PACKARD, Jr. (3d Mem. Peab. Acad. Sci.) describes and figures the embryology of *Telephorus fraxini*. It differs from the other Coleoptera whose development is known, in the primitive band floating in the centre of the yolk, instead of being surrounded by it.

MALACHIIDÆ.

G. H. HORN (*loc. cit.* p. 111). *Temnopsophus* (n. g.) *bimaculatus* n. sp., Louisiana; *Malachius mixtus* n. sp., Cal.; *M. Ulkei* n. sp., Dak.; *Microlipus lævicollis* n. sp., Neb.; *Pseudebæus* (n. g.), *Attalus rostratus* n. sp., Cal.; *A. trimaculatus* Motsch. (*elegans* Horn); *A. Oregonensis* n. sp., Or.; *A. varians* n. sp., Tex.; *A. parallelus* n. sp., Tex.; *A. Pettiti* n. sp., Can.; *A. rufiventris* n. sp., Tex., Ohio.

MONOMMIDÆ.

G. H. HORN (*loc. cit.* p. 149). *Hyporhagus Gilensis* n. sp., *H. opuntiae* n. sp., both from Arizona.

PYTHIDÆ.

G. H. HORN (*loc. cit.* p. 150). *Sphalma* (n. g.), *quadricollis* n. sp., Cal.

CERAMBYCIDÆ.

A. S. PACKARD, Jr. (2d Ann. Rep. Ins. Mass. 17) describes and figures *Arhopalus fulminans* Fabr. and notices its habits; also *Callidium variabile*, and *Physocnemum brevilineum* Say.

CHRYSOMELIDÆ.

G. H. HORN (*loc. cit.* p. 152). *Andrector* (n. g.), *sexpunctatus* n. sp., Texas.

A. S. PACKARD, Jr. (3d Mem. Peab. Acad. 10) describes and figures the embryology of *Gastrophysa polygoni* and *Mysia 13-punctata*. Its development is said to agree substantially with that of *Donacia*.

SUFFRIAN (Stettin Zeitung p. 21). *Donacia pubicollis* n. sp., Illinois.

BRENTHIDÆ.

G. H. HORN (*loc. cit.* p. 127). *Brenthus peninsularis* n. sp., *B. lucanus* n. sp., both from the peninsula of Lower California.

CURCULIONIDÆ.

A. S. PACKARD, Jr. (3d Mem. Peab. Acad. Sci.) describes the habits and embryology of *Attelabus rhois*. Its development in the egg is in its essential features like that of *Donacia*.

A. S. PACKARD, Jr. (2d Ann. Rep. Ins. Mass. 13) figures and describes *Ceutorhynchus assimilis* Payk. and notes its occurrence on the radish in Maine; *Otiiorhynchus picipes* Fabr. adv. Europe, and larva of a species of *Balaninus* found in chestnuts.

SCOLYTIDÆ.

P. S. SPRAGUE (Proc. Bost. Nat. Hist., xiv, 206) notices the habits of *Cryphalus asperulus* Lec.

HEMIPTERA.

W. LEBARON (Second Annual Report on the Noxious Insects of the State of Illinois).

L. PROVANCHER (Le Naturaliste Canadien).

C. V. RILEY (Fourth Annual Report of the Insects of Missouri).

O. M. REUTER, Nabidæ novæ et minus cognitæ (Ofversigt af Kongl. Vetensk. Akad. No. 6).

C. STAAL, Enumeratio hemipterorum (Kongl. Svensk Vetensk. Akad. Handlingar. Vol. 10).

P. R. UHLER, Notices of the Hemiptera of the Western Territories of the U. S. (In Dr. Hayden's Preliminary Report on Montana).

F. WALKER, Catalogue of Hemiptera Heteroptera in the British Museum. Part v.

F. WALKER, Hemiptera (Canadian Entomologist) Heteroptera of America north of the U. S.

R. H. STRETCH (Proc. Cal. Acad. Sci. iv, 262). Notes on a species of *Coccus* recently found in California.

S. H. SCUDDER (Amer. Nat., vi, 665). Fossil Insects from the Rocky Mountains. Two Hemiptera are cited.

(H E T E R O P T E R A .)

SCUTELLERIDÆ.

P. R. UHLER (*l. c.*) reports *Corimelæna nitiduloides* Wolff, *C. extensa* Uhler, *Homæmus æneifrons* Say, and describes as new *H. bijugis*, from Colorado, etc.

L. PROVANCHER (*l. c.*) describes as new *Eurygaster Nicoletanensis*, from Upper Canada. It is only a local form of *E. alternatus*! Say.

F. WALKER (Canad. Ent.) records *Homæmus exilis* H. Sch., *Corimelæna unicolor* Beauv., *C. ater* Dallas.

PENTATOMIDÆ.

L. PROVANCHER (*l. c.*) describes as new *Perillus marginatus*, and *Brochymena 4-notata*. The former is the previously described *Perillus circumcinctus* Staal.

C. V. RILEY (*l. c.*) notes the predaceous habits of *Perillus circumcinctus* Staal, *Euschistus punctipes* Say, and *Arma* (Podisus) *spinus*

Say; and reports *Murgantia histrionica* Hahn to be destructive to the cabbages, in Missouri, Texas, etc.

C. STAAL (*l. c.* p. 6) notices *Discocephala notulata* Staal, *D. clypeata* Staal, *Dinocoris obscurus* Dallas, *Pelidnocoris Staali* Hagl., *Empicorus ramosus* Walk., Mexico, *Alathetus rufitarsis* Dallas, Jamaica, *Podops dubius* Beauv., Cuba, *P. cinctipes* Say, N. America; *Brochymena myops* Staal, *B. quadripustulata* Fab., *B. Annulata* Fab., *B. arborea* Say, *B. Carolinensis* Westw., *B. Harrisii* Uhler, United States; *Mecidea longula* Staal, Texas; *Aelia Americana* Dallas, *Neotiglossa undata* Say, *Cosmopepla carnifex* Fab., *Mormidea lugens* Fab., *Oebalus pugnax* Fab., *Euschistus fissiles* Uhler, *E. servus* Say, *E. tristigma* Say, *E. variolarius* Beauv., *E. ictericus* Linn., *E. crenator* Fab., *E. crassus* Dallas, *Proxys punctulatus* Beauv., *Cænus delius* Say, *Hymenarcys æqualis* Say, *H. nervosa* Say, *Meneclis insertus* Say, *Prionosoma podopioides* Uhler, *Lioderma saucia* Say, *Rhytidolomia senilis* Say, *Anthemina Lynx* Fab., *Trichopepla semivittata* Say, *Thyanta perditor* Fab., *T. custator* Fab., *T. pallido-virens* Staal, *T. tæniola* Dallas, *T. rugulosa* Say, *Murgantia histrionica* Hahn, *Perillus bioculatus* Fab., *Nezara viridula* Linn., *N. Pensylvanica* DeGeer, *N. hilaris* Say, *Banasa dimidiata* Say, *B. catinus* Dallas, *Arvelius albo-punctatus* DeGeer, *Edusa bifida* Say, *Acanthosoma cruciata* Say, *A. affinis* Westw., *A. borealis* Westw., *A. nebulosa* Kirby, *A. lateralis* Say, *Pentatoma laticornis* Say, *P. calva* Say, *P. faceta* Say, *P. pantherina* Westw., *P. Harrisii* Westw., *P. picea* Dallas, *P. dubia* Dallas, United States and Canada; also *Brochymena obscura* H. Schf., *B. Poeyi* Guer. *Cosmopepla decorata* Hahn, *C. conspicillaris* Dallas, *Mormidea collaris* Dallas, *M. angustata* Staal, *M. pictiventris* Staal, *M. notulata* H. Schf., *M. discoidea* Dallas, *M. geographica* Guer., *M. cubrosa* Dallas, *Euschistus verrucifer* Staal, *E. bifibulus* Beauv., *E. spurculus* Staal, *E. comptus* Walk., *E. bififormis* Staal, *E. strenuus* Staal, *Berecynthus delirator* Fab., *Padæus irroratus* H. Schf., *P. trivittatus* Staal, *Proxys victor* Fab., *P. punctulatus* Beauv., *Cænus delius* Say, *Chlorochroa ligata* Say, *Thyanta tæniola* Dallas, *T. casta* Staal, *Chlorocoris atrispinus* Staal, *C. rufispinus* Dallas, *C. rubescens* Walk., *C. distinctus* Sign., *Loxa flavicollis* Drury, *Murgantia munda* Dallas, *M. violascens* Westw., *Arocera melanopyga* Staal, *A. splendens* Blanch., *A. rufonotata* Staal, *Runibia perspicua* Fab., *R. proxima* Dallas, *Vulsirea insignis* Blanch., *V. variegata* Drury, *V. violacea* Fab., *Pharypia pulchella* Drury, *P. nitidiventris* Staal, *P. fasciata* Hagl., *Nezara stictica* Dallas, *N. marginata* Beauv., *N. sparnius* Dallas, *Piezodorus Guildinii* Westw., *Phineus fusco-punctatus* Staal, *Taurocerus achilles* Staal, *T. hector* Staal, *Pharnus inconspicuus* H. S., *P. variegatus* Guer., *Brachystethus rubromaculatus* Dallas, *Peromatus robustus* Hagl., *Edessa taurina* Staal, *E. Arabs* Linn., *E. arietina* Staal, *E. hædula* Staal, *E. olivacea* Staal, *E. nigricornis* Staal, *E. reticulata* Staal, *E. nigrispina* Staal, *E. junix* Staal, *E. vinula* Staal, *E. rixosa* Staal, *E. puncticornis* Staal, *E. patricia* Staal, *E. lineigera* Staal, *E. rufo-marginata* Staal, *E. meditabunda* Fab., *E. albicors* Staal, *E. præcellens* Staal, *E. jurgiosa* Staal, *E. lepida* Staal, *E. pudica* Staal, *E. pudibunda* Staal, *Olbia caprina* Staal, *Pentatoma cruenta* Beauv., *Pentatoma ovalis* Westw., *P. obsoleta* Dallas, West Indies and Mexico; and describes as new *Discocephala marginella*, *Melanodermus tartareus*, *Brochymena cariosa*, *Melanostoma sulcifrons*, *M. cavifrons*, *Mormidea albisignis*, *M. sordidula*, *M. grisescens*, *Oebalus insularis*, *Euschistus impictiventris*, *E. rugifer*, *E. integer*, *Hymenarcys reticulata*, *Rhytidolomia Belfragei*, *Chlorochroa Uhleri*, *C. Sayi*, *Trichopepla atricornis*, *Peribalus limbolarius*, *Chlorocoris subru-*

gossus, *Fecelia minor*, *Banasa Packardii*. *B. euchlora*, *Piezodorus herbaeus*, *Modicia seclineata*, *Elessa laticornis*, *E. conspersa*, *E. Westringii*, *E. picticornis*, *E. Mexicana*, *E. punctiventris*, from Texas, Mexico and the West Indies.

P. R. UHLER (*l. c.*) reports *Brochymena serrata* Fab., *B. arborea* Say, *Primosoma podopioides* Uhler, *Perillus claudus* Say, *P. exapta* Say, *P. circumcinctus* Staal, *Podisus spinosus* Dallas, *Zicrona cuprea* Dallas, *Cosmopepla carnifex* Fab., *Neottiglossa unclata* Say, *Mormidea lugens* Fab., *Murgantia histrionica* Hahn, *Cænus delia* Say, *C. æqualis* Say, *Euschistus fissilis* Uhler, *E. punctipes* Say, *E. pyrrhocerus* H. Schf., *Carpocoris lynx* Fab., *Pentatoma ligator* Say, *P. faceta* Say, *Thyanta perditor* Fab., *T. custator* Fab., *T. rugulosa* Say, Colorado, Arizona, etc.; and describes as new *Homæmus bijugis*, *Microporus obliquus*, *Peribalus modestus*, *Holcostethus abbreviatus*, *Pentatoma granulosa*, from Montana, etc.

F. WALKER (Canad. Ent.) records *Arma modesta* Dallas, *Zicrona cuprea* Dallas, *Z. marginella* Dallas (already cited many times by accurate authors under its correct name, *Perillus exaptus* Say), *Æthus bilineatus* Say, *Sehirus ligatus* Say, *Euschistus punctipes* Say, *E. luridus* Dallas, *Ælia trilineata* Kirby, *Eysarcoris carnifex* Fab., *Pentatoma juniperina* Linn., *P. picea* Dallas, *Rhaphigaster catinus* Dallas, *Acanthosoma cruciata* Say, Canada. Several others of these are also preoccupied, and belong to other genera.

COREIDÆ.

L. PROVANCHER (*l. c.*) describes as new genus and species *Tetrarhinus Quebecensis*. It is the previously described *Protenor Belfragei* Hagl.

P. R. UHLER (*l. c.*) notices *Archimerus calcurator* Fab., *Merocoris distinctus* Dallas, *Leptoglossus phyllopus* Linn., *Chelinidea vittigera* Uhler, *Margus inconspicuus* H. Schf., *Catorhintha mendica* Staal, *Ficana apicalis* Dallas, *Anasa tristis* DeGeer, *Alydus eurinus* Say, *Stachyocnemus apicalis* Dallas, *Protenor Belfragei* Hagl., *Neides spinosus* Say, *Harmostes reflexulus* Say, *Anfeius impressicollis* Staal, *Corizus borealis* Uhler, *C. lateralis* Say, *Leptocoris trivittatus* Say, *Jadera hæmatoloma* H. Schf., Colorado, Dakota, etc., and describes as new *Metapodius Thomasii*, *Alydus Pluto*, *Neides decurvatus*, *Dasycoris humilis*, and *Corizus viridicatus*, from Colorado, etc.

F. WALKER (*l. c.*) cites *Catorhintha guttula* Fab., *C. selector* Staal, *Nirovecus claviger* Staal, *Madura perfida*, *Plunentis tabulatus* Burm., *Plapigus circumcinctus* Staal, *Harmostes virescens* Dallas, *H. serratus* Fab., *H. dorsalis* Burm., *H. nebulosus* Staal, *Margus inconspicuus* H. Schf., *Margus inornatus* Staal, *Rhopalus punctipennis* Dallas, *R. punctiventris* Dallas, *R. maculigerus* Uhler, *R. sidae* Fab., *R. hyalinus* Fab., *R. scutatus* Staal, *R. ventralis* Signt., from N. America and Mexico, and describes as new *Namacus rufescens*, from Mexico.

F. WALKER (Canad. Ent.) records *Alydus calcaratus* Linn., Canada.

LYGÆIDÆ.

W. LEBARON (*l. c.*) details the habits of *Micropus leucopterus* Say, in Illinois.

L. PROVANCHER (*l. c.*) describes as new *Rhyparochromus punctatus* and *Nysius Saint-Cyri*, from Upper Canada.

P. R. UHLER (*l. c.*) notices *Lygæus turcicus* Fab., *L. fasciatus* Dallas, *L. bistrangularis* Say, *L. jacetus* Say, *L. bicrasis* Say, *Nysius Californicus* Staal, *Ophthalmicus piceus* Say, *Emblethis arenarius* Linn., *Rhyparochromus jallax* Say, *Plociomerus diffusus* Uhler, from Colorado, etc., and describes as new *Lygæus admirabilis*, *Nysius angustatus*, *Heraeus insignis* Colorado.

F. WALKER (*l. c.*) cites *Lygæus fasciatus* Dallas, *L. reclinatus* Say, *L. trimaculatus* Dallas, *L. lineola* Dallas, *L. turcicus* Fab., *L. bicrasis* Say, *L. costalis* H. Schf., *L. analis* Dallas, *L. gutta* H. Schf., *L. flavo-marginellus* Staal, *L. varicolor* Dallas, *L. alternans* H. Schf., *L. unifasciatus* Fab., *L. elatus* Staal, *L. truculentus* Staal, *L. trux* Staal, *L. ruficeps* Staal, *L. circumlitus* Staal, *L. rubriger* Staal, *L. thoracicus* Staal, *L. vittiscutis* Staal, *L. pallescens* Staal, *L. pallidocinctus* Staal, *L. brevicollis* Staal, *L. Tullus* Staal, *L. lateralis* Staal, *L. Poeyi* Guer., *L. marginellus* Dallas, *L. vicinus* Dallas, *L. aulicus* Fab., *L. quadriguttatus* Staal, *L. collaris* Staal, *L. pulchellus* Dallas, *Belonochilus numenius* Say, *Nysius Californicus*, Staal, *N. basalis* Dallas, *N. scutellatus* Dallas, *N. Jamaicensis* Dallas, *N. spurcus* Staal, *Aphanus tripunctatus* Dallas, *A. nodosus* Say, *Eremocoris jerus* Say, *Rhyparochromus lineatus* Dallas, *R. basalis* Dallas, *R. scutellatus* Dallas, *R. vicinus*, Dallas, *R. fraternus* Uhler, *R. picturatus* Uhler, *Pterotmetus abbreviatus* Uhler, *Plociomerus parvulus* Dallas, *P. bilobatus* Say, *P. constrictus* Say, *P. diffusus* Uhler, *P. piliger* Staal, *P. litigiosus* Staal, *P. oblongus* Staal, *Orthæa guttata* Dallas, *Oxycarenus coriacipennis* Staal, *Micropus fulvipes* Dallas, *M. leucopterus* Say, *Ophthalmicus griseus* Dallas, *O. borealis* Dallas, *O. niger* Dallas, *O. tristis* Staal, *O. pallens* Staal, *O. lividipennis* Staal, *Cymus Resedæ* Panz., *C. Bohemani* Staal, *C. Franciscanus* Staal, *Cymodema virescens* Fab., *Oedancala dorsilinea* Amyot, *Myodocha serripes* Oliv., *M. giraffa* Staal, Mexico, West Indies and the U. S., and describes *Lygæus marginalis*, *L. dimidiatus*, Mexico, *L. anticus*, St. Domingo; *Ischnodemus longus*, Mexico; *Thaumastopus alacris*, N. America.

LARGIDÆ.

P. R. UHLER (*l. c.*) notices *Largus succinctus* Linn., from Arizona, etc.

PYRRHOCORIDÆ.

F. WALKER (*l. c.*) reports *Dysdercus suturellus* H. S., *D. mimus* Say, *D. albidiventris* Staal, *D. concinnus* Staal, *D. flavolimbatus* Staal, *D. lunulatus* Uhler, *D. andrææ* Linn., *D. sanguinarius* Staal, Mexico and the West Indies, and describes as new *D. mundus*, Mexico; *D. Jamaicensis*, *D. fervens*, Jamaica and St. Domingo.

PHYTOCORIDÆ.

L. PROVANCHER (*l. c.*) describes as new *Miris vicinus*, *M. Belangeri*, *M. viridis*, *Collaria* (new genus) *Meilleurii*, *Capsus flavonotatus*, *C. flavipes*, *Lygus brunneus*, *L. dorsalis*, *L. fuscus*, *L. unicolor*, *Rhopalotomus rubronotatus*, Upper Canada.

P. R. UHLER (*l. c.*) notes *Trigonotylus ruficornis* Fallen, *Calocoris rapidus* Say, *Resthenia insignis* Say, *Lopidea media* Say, *Lygus lineolaris* Beauv., from Colorado, etc., and describes *Megalocera debilis*, *M. rubicunda*, *Leptopterna amæna*, *Calocoris Palmeri*, *Resthenia confra-*

terna, *Lopidea*, and *Hadronema* (new genera), *H. militaris*, *Lygus* (new genus) *annexus*, Dakota; *D. hesperia*, *Pæciloscytus venaticus*, *P. diffusus*, *Rhopalotomus Pacificus*, *R. brachycerus*, *Labops hesperius*, *Camptobrochis nebulosus*, *Tinicephalus simplex*, *Plagiognathus obscurus*, *Agalliastes associatus*, from Colorado, Utah and Arizona.

ARADIDÆ.

P. R. UHLER (*l. c.*) notes *Aradus rectus* Say, Colorado.

ANTHOCORIDÆ.

F. WALKER (*l. c.*) notices *Anthocoris borealis* Dallas, *Lytocoris campestris*, *Triphleps insidiosus* Say, from North America.

REDUVIDÆ.

L. PROVANCHER (*l. c.*) describes as new *Reduvius albosignatus*, and *Durbanus Georgiae*, from Georgia.

O. M. REUTER (*l. c.* pp. 79—.) describes as new *Nabis crassipes*, Mexico; *N. Sericans*, Texas; *N. Sordidus*, Mexico; *N. pallescens*, Penn., *N. annulatus*, and *N. vicarius*, Illinois; *N. roseipennis*, Wisconsin; *N. punctipes*, New Jersey; *N. Kalmii*, Wisconsin; *N. rufusculus*, New York; *Metatropiphorus Belfragei*, Texas, and notices *Nabis coleoptratus* Kirby and *N. ferus* Linn., from United States.

C. STAAL (*l. c.* pp 70.—) notices *Sinea diadema* Fab., *Acholla multi-spinosa* DeGeer, *Prionotus cristatus* Linn., *Atrachelus cinereus* Fab., *Fitchia nigrovittata* Staal, *Milyas cinctus* Fab., *Zelus bilobus* Say, *Diplodus luridus* Staal, *D. Renardii* Kol., *Apiomerus crassipes* Fab., *A. spissipes* Say, *Hammatocerus purcis* Drury, *Ectrichodia cruciata* Say, *Pothea æno-nitens* Staal, *Sirthenea carinata* Fab., *Rasahus biguttatus* Say, *Melanolestes picipes* H. Schf., *Conorhinus variegatus* Drury, *C. sanguisugus* Lec., *C. Gerstaeckeri* Staal, *Opsicoetus pungens* Lec., *Centromelus languida* Staal, *C. infirma* Staal, *Pygolampis sericea* Staal, *P. pectoralis* Say, *Stenopoda culiciformis* Fab., *Narvesus Carolinensis* Staal, *Oncerotrachelus acuminatus* Say, *Emesa longipes* DeGeer, *Barce annulipes* Staal, *Luteva Carolina* H. Schf., *Reduvius ventralis* Say, *Ploiaria fraterna* Say, *P. errabunda* Say, United States; also, *Sinea coronata* Staal, *S. sanguisuga* Staal, *S. raptoria* Staal, *S. detecta* Staal, *S. integra* Staal, *Acholla tabida* Staal, *Prionotus depressicollis* Staal, *Plæogaster acantharis* Wolff., *Heza pulchripes* Staal, *H. acantharis* Linn., *H. clavata* Guer., *Ricolla simillina* Staal, *Rocconota octispina* Staal, *R. tuberculigera* Staal, *Repipta fuscipes* Staal, *R. nigronotala* Staal, *Castolus subinermis* Staal, *C. trinotatus* Staal, *C. plagiaticollis* Staal, *Graptocleptes sanguineiventris* Staal, *Notocyrtus dromedarius* Staal, *Milyas punctipes* Amyot, *M. zebra* Staal, *Zelus longipes* Linn., *Z. rubidus* Serv., *Z. speciosus* Burm., *Diplodus janus* Staal, *D. litigiosus* Staal, *D. ruficeps* Staal, *D. exsanguis* Staal, *D. grassans* Staal, *D. rugax* Staal, *D. mimus* Staal, *D. umbratilis* Staal, *D. ambulans* Staal, *D. cognatus* Costa, *D. telracanthus* Staal, *D. phalangium* Fab., *Apiomerus elatus* Staal, *A. subpiceus* Staal, *A. mæstus* Staal, *A. flaviventris* H. Schf., *A. pictipes* H. Schf., *A. Burmeisteri* Guer., *Hammatocerus luctuosus* Staal, *Ectrichodia ruficollis* Staal, *Rasalius albomaculatus* Mayr., *R. sulcicollis* Serv., *R. guttatipennis* Staal, *Thymbreus crocinopterus* Staal, *Meccus phyllosomus* Burm., *M. Mexicanus* H. Schf., *Conoshinus dimidiatus* Lat., *C. macu-*

lipennis Staal, *C. rubro-fasciatus* DeGeer, *Macrophthalmus histrionicus* Staal, *Spiniger limbatus* Serv., *Leogorrus litura* Fab., *L. venator* Staal, *Microcleptes bannulipes* Staal, *Nalata setulosa* Staal, *Gnathobleda litigiosa* Staal, *Saica tibialis* Staal, *Bactrodes spinulosus* Staal, *Westermannia annulata* Dohrn, *W. tenerrima* Dohrn, *Ghilianella Gerstaeckeri* Dohrn, *G. varicornis* Dohrn, *G. Signoriti* Dohrn, *Cerascopus Fairemairei* Dohrn, *Lutera macrophthalma* Dohrn, *L. Gundlachii* Dohrn, *Palacus cubensis* Dohrn, *P. pallidus* Guer., *Deliastes reticulatus* Dohrn, Mexico and the West Indies; and describes as new *Acholla ampliata*, *Heza annulicormis*, *Fitchia spinosula*, *Zelus cervicalis*, *Zelus subimpressus*, *Homalocoris maculicollis*, *Ectrichodia cinctiventris*, *E. crucifera*, *Rasahus thoracicus*, *Meccus pallidipennis*, *Gnathobleda tumida*, *Spilolionius geniculatus*, from Mexico, Texas and the West Indies.

P. R. UHLER (*l.c.*) notices *Nabis inscriptus* Kirby, *N. subcoleopratus* Kirby, *Sinea multispinosa* DeGeer, *Fitchia nigrovittata* Staal, *Diplodus luridus* Staal, *Milyas cinctus* Fab., *Herega spissipes* Say, *Melanolestes picipes* H. Schf., *M. abdominalis* H. Schf., *Stenopoda cinerea* Lap., from Colorado, Kansas and Indian Territory, and describes *Pindus socius* from Idaho.

SALDÆ.

L. PROVANCHER (*l.c.*) describes as new *Sciadopterus Bouchervillei*, *Salda major*, *S. obscura*, *S. variegata*, from Upper Canada.

P. R. UHLER (*l.c.*) notices *Salda interstitialis* Say, and describes *S. coriacea*, from Ogden, Utah.

VELIIDÆ.

P. R. UHLER (*l.c.*) describes as new the genus *Macrovelia*, with the new species *M. Hornii*, from New Mexico, California and Arizona.

HYDROMETRIDÆ.

P. R. UHLER (*l.c.*) reports *Hygrotrechus remigis* Say, and *Limnotrechus marginatus* Say, from Idaho.

NAUCORIDÆ.

P. R. UHLER (*l.c.*) reports *Ambrysus Signoreti* Staal, from Red Butte.

CORISIDÆ.

L. PROVANCHER (*l.c.*) describes as new *Corisa 3-lineata*, and *C. 2-lineata*, from near Quebec.

(H O M O P T E R A .)

DELPHACIDÆ.

L. PROVANCHER (*l.c.*) describes as new *Delphax unipunctata* and *D. furcata*, Upper Canada.

CICADIDÆ.

- W. LEBARON (*l.c.*) gives an account of the *Cicada septendecim* Linn.
 L. PROVANCHER (*l.c.*) reports *C. septendecim*, from Upper Canada.
 C. V. RILEY (*l.c.*) reports recent broods of *C. septendecim*.

MEMBRACIDÆ.

- L. PROVANCHER (*l.c.*) describes as new *Tragopa brunnea*.

CERCOPIDÆ.

- L. PROVANCHER (*l.c.*) describes as new *Cephalelus Americanus*,
Ptyelus albiceps, *Clastoptera Saint-Cyri*, from Upper Canada.

TETTIGONIDÆ.

- L. PROVANCHER (*l.c.*) describes as new *Tettigonia Quebecensis*, *Acopsis viridis*, *Penthimia picta*, *Bythoscopus sanguinolentus*, *B. 4-punctatus*, *Pediopsis flavescens*, *Macropsis clitellarius*, *M. ocellatus*, *Janus aurantiacus*, *J. subcupreus*, *J. melanogaster*, *J. 6-punctatus*, *J. citronellus*, *J. nervalus*, *Typhlocyta rosea*, from Upper Canada.

PSYLLIDÆ.

- W. LEBARON (*l.c.*) notices *Psylla pyri* Linn., to be injurious to pear trees in Illinois.

- L. PROVANCHER (*l.c.*) describes as new *Diraphia virescens*, *Psylla ochracea*, and *P. brunnea*, from Upper Canada.

APHIDÆ.

- W. LEBARON (*l.c.*) describes *Lachnus dentatus* as new, and as injurious to willows in Illinois.

- C. V. RILEY (*l.c.*) gives a detailed account of *Phylloxera vitifoliæ* Fitch.

COCCIDÆ.

- W. LEBARON (*l.c.*) details the habits of *Mytilaspis salicis*, n. sp., and of *M. conchiformis* Gmelin, and *M. pinifolii* Fitch, in Illinois.

- R. H. STRETCH (Proc. Cal. Acad. Sci., iv, 262) describes the structure and habits of three species of Coccidæ.

ORTHOPTERA.

- T. GLOVER. Illustrations of North American Entomology (United States and Canada): Orthoptera. 4to. 13 Plates. Washington D. C. (for the author). These illustrations are not accompanied by any descriptions; at the end of the work

there are some notes on the food and habits of Orthoptera, and an alphabetical list of vegetable and animal substances injured by them. It is to be regretted that the species are not arranged systematically, but this was not possible under the circumstances. The author includes in the order Thripidæ, Poduridæ and Mallophaga.

T. GLOVER. In the Monthly Reports of the Department of Agriculture for February, March, May and June, October, and November and December, 1872.

J. ORTON (*American Naturalist*, Vol. vi, Nov., 1872, p. 625).

S. H. SCUDDER (In the final Report of the United States Geological Survey of Nebraska, etc., by F. V. Hayden). Notes on the Orthoptera collected by Dr. F. V. Hayden in Nebraska.

This paper contains descriptions of several new species, and remarks on the devastating grasshoppers of North America.

S. H. SCUDDER (*Amer. Nat.*, Nov. 1872, Vol. vi, p. 667) makes allusions to an undescribed fossil Orthopter.

C. THOMAS (In the Preliminary Report of the Geological Survey of Montana etc., by F. V. Hayden). Notes on the Saltatorial Orthoptera of the Rocky Mountain Regions. This paper contains the descriptions of several new species; also the outline of a proposed arrangement of the subdivisions of *Acrididæ*.

C. THOMAS (*Canadian Entomologist*, iv, p. 16).

F. WALKER. Catalogue of the specimens of Dermaptera Saltatoria in the Collection of the British Museum. 8vo. Parts iv, v, pp. 605-850: Supplement to the Catalogue of Blattariæ, pp. 1-43: Supplement to the Catalogue of Dermaptera Saltatoria pp. 1-116. The date in the title page of pt. v (of some copies, perhaps all) is wrong, being 1870 when it should be 1871 as is shown by the preface on the next page. These parts complete this Catalogue of one of the most important collections of Orthoptera in the world. It is to be regretted that the work has not been performed with more care, the generic and specific descriptions being in numerous instances of very little value. In some instances genera are introduced in the synoptical tables which are omitted in the descriptive por-

tion of the work. The fifth part in addition to the supplements contains a notice of the geographical distribution of the genera; and remarks on the arrangement of the families.

GRYLLIDÆ.

F. WALKER (Suppl. to Cat. Dermap. Salt.) describes as new *Gryllus debilis*, Nicaragua; *Platydictylus diversus* and *P. lituratus*, Nicaragua; and describes a species from Brazil which he refers to *Pilurgis teres*.

T. GLOVER (Ill. N. A. Ent. Orth.) figures the following species: *Tridactylus terminalis*, *Gryllotalpa longipennis*, *G. borealis*, *Gryllus luctuosus*, *G. Pensylvanicus*, *G. neglectus*, *G. abbreviatus*; *Nemobius vittatus*, *N. fasciatus*, *N. exiguus*; *Orocharis saltator*; *Phyllopalpus pulchellus*; *Æcanthus niveus*. *Æ. bipunctatus*.

C. THOMAS (Geol. Surv. Mont.) gives localities in the West where *Gryllus abbreviatus*, *G. luctuosus* and *Æ. niveus* are found.

S. H. SCUDDER (Geol. Surv. Neb.) mentions *Gryllus neglectus*, *G. personatus*, *Nemobius vittatus*, and *Æcanthus niveus*.

S. H. SCUDDER (Am. Nat., Nov., 1872, 667) mentions a fossil Orthopter, "probably of the genus *Nemobius*," Wyoming Territory.

LOCUSTIDÆ.

F. WALKER (Suppl. to Cat. Dermap. Salt.) describes as new the following genera and species: *Aganacris* (n. gen.) *micans*, Amazon Region; *Valna nigropicta*, Para; *Microcentrum vividum*, Orizaba; *Phylloptera intacta*, Nicaragua; *Meroncidius vittifrons* (n. gen.), Nicaragua; *Anonistus obliterans*, Brazil; *Clisis* (n. gen.) *annulicornis*, Brazil; *Acanthodiphrus* (n. gen.) *conspersus*, Nicaragua.

C. THOMAS (Geol. Surv. Montana) describes as new, *Stenopelmatus fasciatus*, Wyoming; *Ceuthophilus pallidus*, Colorado; *C. castaneus*, California, *C. pacificus*, California, *C. bilobatus*, California; *Anabrus Coloradus*, Colorado; *Thamnotrizon scabricollis*, Montana; *Decticus pallidipalpus*, Utah and Idaho; *Locusta fuliginosa*, Arizona; *L. occidentalis*, California. *Copiophora mucronata* is also described; the position and characters of the genus *Anabrus* discussed and the author's former emendation corrected; he restores *Thamnotrizon purpurascens* Thos. = *Anabrus purp.* Uhler, to this genus, and removes *A. Haldemannii*, *A. minutus*, and *A. Stevensoni* therefrom, referring them, with doubt, to *Pterolepis* Fisch. (not Serv.); refers *Thamnotrizon trilineatus* to *Decticus* (?). Gives localities of *Udeopsylla robusta* and *Ephippitytha gracilipes*.

C. THOMAS (Can. Ent. iv, p. 14) describes as new *Copiophora mucronata*, found in the greenhouse of the Department of Agriculture.

S. H. SCUDDER (Geol. Surv. Neb.) mentions *Ceuthophilus gracilipes*; *Udeopsylla robusta*, and describes as new *Xiphidium saltans*; *Conocephalus attenuatus* and *Anabrus similis*.

T. GLOVER (Ill. N. A. Ent. Orth.) figures the following species: *Stenopelmatus talpa* (?), *St. fasciatus*; *Hadenæcus subterraneus*; *Ceuthophilus maculatus*, *C. lapidirola*, *C. Uhleri*; *Udeopsylla robusta*; *Daihina brevipes*; *Camptonotus Scudderi*; *Anabrus* (*Pterolepis*) *Haldemannii*, *A. simplex*; *Pterolepis* (*Anabrus*) *minutus*; *Thamnotrizon* (*Decticus*) *trilineatus*, *Th. dorsale*, *Th. scabricollis*; *Decticus pallidipalpus*; *Orch-*

elimum vulgare (=agilis); *Xiphidium fasciatum*, *X. brevipennis*; *Locusta fuliginosa*, *L. occidentalis*; *Conocephalus ensiger*; *Copiophora mucronata*; *Phaneroptera curvicauda*, *Ph. Coloradensis*; *Ephippitytha gracilipes*; *Phylloptera oblongifolia*; *Microcentrum retinervis*.

T. GLOVER (Monthly Repts. Dpt. Agr.) wingless grasshopper or "cricket" of Utah (*Anabrus simplex*)—Feb.; Notes on *Copiophora mucronata* (May and June).

S. H. SCUDDER (Am. Nat., Nov., 1872, 667) speaks of a fossil Locustarian about as large as our common Phylloptera, found in Wyoming Terr.

ACRIDIDÆ.

F. WALKER (Cat. Dermap. Salt.—pt. iv) describes as new the following North American species and genera. *Cyrtacanthacris concolor*, Mexico; *C. simulatrix*, St. Domingo; *C. unilineata*, Indiana; *C. diversifera*, N. America; *Acridium proprium*, Oajaca; *Calacris* (n. gen.) *pudica*, Mexico; *Chromacris* (n. gen.) in which he places *Acridium coloratum* Serv.; *Stenacris* (n. gen.) *chlorizans*, Florida; *Caloptenus repletus*, U. States; *C. bilituratus*, Vancouver's Island; *C. fasciatus*, St. Martin's Falls, Hudson's Bay; *C. scriptus*, Vancouver's Island; *C. extremus* and *C. arcticus*, Arctic America; *C. selectus*, Oajaca; *C. Mexicanus*, Orizaba; *Ædipoda parviceps*, W. coast of N. America; *Æ. transtrigata*, Oajaca; *Æ. aurifera*, St. Jago; *Æ. speciosa*, Honduras; *Stenobothrus subconspersus*, Florida; *S. Mexicanus*, Oajaca; *S. deciusus*, St. Domingo; *Oxycoryphus tibialis*, Oajaca.

(Pt. v) *Choriphyllum plagiatum*, Jamaica.

(Suppl.) *Opomala stenobothroides*, Nicaragua; *Ædipoda tentatrix*, Oajaca; *Epicromia collecta*, St. Jago.

These volumes also contain descriptions of a number of new S. American species and genera.

C. THOMAS (Geol. Surv. Montana) describes as new *Acridium ambiguum*, Illinois, etc.; *A. frontalis*, Kansas; *Caloptenus viridis*, Colorado and Kansas; *C. Turnbullii*, Wyoming; *C. occidentalis*, Wyoming; *C. griseus*, Ohio; *Pezotettix obesa*, Montana; *P. Nebrascensis*, Nebraska; *Ædipoda undulata*, Colorado, etc.; *Æ. Haydenii*, Wyoming; *Æ. paradoxa*, Utah; *Æ. gracilis*, Colorado; *Æ. Wyomingiana*, Wyoming; *Æ. Kiowa*, Colorado; *Æ. Montana*, Montana; *Æ. longipennis*, Kansas; *Stenobothrus bicolor*, Colorado; *Oxycoryphus obscurus*, Wyoming.

S. H. SCUDDER (Geol. Surv. Neb.) describes as new *Stenobothrus gracilis*; *Acridium emarginatum*; *Pezotettix speciosa*; *Ædipoda collaris*; *Æ. tenebrosa*; *Æ. Haldemannii*, all from Nebraska. He also mentions the following as found in that state, *Opsomala* (*Opomala*) *bivittata*; *Brachypeplus magnus*; *Caloptenus femur-rubrum*; *C. spretus*; *C. bivittatus*; *Ædipoda trifasciata*; *Æ. Carolina*; adds lengthy remarks on the destructive species, *C. femur-rubrum*, *C. spretus* and *Ædipoda atrox*.

T. GLOVER (Ill. N. Am. Ent. Orth.) figures the following species, *Opomala bivittata*; *Mesops Wyomingensis*; *Romalea centurio*; *Acridium Americanum*; *A. rubiginosum*, *A. obscurum*, *A. alutaceum*, *A. semirubrum*; *Caloptenus bivittatus*, *C. spretus*, *C. femur-rubrum*, *C. occidentalis*, *C. viridis*, *C. Dodgei*, *C. Turnbullii*, *C. griseus*, *C. differentialis*; *Pezotettix borealis*, *P. picta*, *P. obesa*, *P. Nebrascensis*, *P. unicolor*; *Oxycoryphus obscurus*; *Acrolophitus hirtipes*; *Stenobothrus admirabilis*, *St. maculipennis*, *St. longipennis*, *St. curtipennis*, *St. equalis*; *Chloë-altis conspersa*, *Ch. viridis*; *Tragocephala viridifasciata*, *Tr. infuscata*;

Stauronotus Elliotti; *Ædipoda eucerata*, *discoidea*, *corallipes*, *Carolina*, *phænicoptera*, *sulphurea*, *rugosa*, *montana*, *cincta*, *undulata*, *maritima*, *pellucida*, *carlingiana*, *Haldemanni*, *atrox*, *marmorata*, *tenebrosa*, *trifasciata*, *verruculata*, *longipennis*, *carinata*, *sordida*, *æqualis*; (*Gryllus*) *formosus*; * *Boopedon flavofasciatum*, *B. nubilum*; *Brachypeplus magnus*, *Br. virescens*; *Tettix ornata*, *T. lateralis*; *Tettigidea polymorpha*; *Batrachidea cristata*; *Phrynotettix verruculata*.

T. GLOVER (Monthly Repts. Dept. Agr.) Jan. Destructive grasshoppers in California, *Ædipoda atrox*, and notices of *Calop. jemur-rubrum* and *spretus*. Nov. and Dec. Injuries by a large grasshopper (*Romalea microptera*=*centurio*).

PHASMIDÆ.

S. H. SCUDDER (Geol. Surv. Neb.) gives the locality in Nebraska where *Diapheromera Velii* is found.

T. GLOVER (Ill. N. Am. Ent. Orth.) figures the following species: *Diapheromera femorata*; *Anisimorpha buprestoides*.

MANTIDÆ.

S. H. SCUDDER (Geol. Surv. Neb.) describes the following new species: *Stagmatoptera minor*, Nebraska; *Temnopteryx marginata*, Nebraska.

T. GLOVER (Ill. N. Am. Ent. Orth.) figures the following species: *Mantis Carolina*; *M. Missouriensis*, and two undescribed species of Mantis.

NEUROPTERA.

E. DE SELYS LONGCHAMPS. Synopsis des Cordulines, 1871. (Published also in Bull. Acad. Belgique, 1871, pp. 238-316, 519, 565).

A. S. PACKARD, JR. Embryological Studies on Hexapodous Insects. (3d. Mem. Peab. Acad. Sci.).

H. HAGEN (American Naturalist, vi, 388). Mimicry in the Colors of Insects. Though certain Coleoptera are referred to, the Neuroptera (Odonata) are also cited as the subjects studied in the investigation.

S. H. SCUDDER (Amer. Nat., vi, 665). Fossil Insects from the Rocky Mts. Two Neuroptera are cited.

* This species does not belong to the Gryllidæ, but is the type of a new genus of *Acrididæ*, *Trapidolophus* Thomas MS.

R. MC LACHLAN (Ent. Month. Mag., London, viii, 1871, 100).
Bittacus apterus nov. sp.

R. MC LACHLAN (Linnæan Society's Journal, Zoology, xi, 1871, 219). An attempt towards a systematic classification of the family *Ascalaphidæ*.

R. MC LACHLAN (Linn. Soc. Journ., xi, 1871, 98). On new forms, etc., of Extra European Trichopterous Insects.

LIBELLULIDÆ.

E. DE SELYS LONGCHAMPS (Syn. Cordulines, 1871) monographs the Cordulina of all the world, noticing the characteristics and localities of *Cordulia Shurtleffii* Scudder; *C. cynosura* Say; *C. semiaquea* Burm.; *C. costalis* De Selys; *C. princeps* Hagen; *Epithea obsoleta* Say; *E. linearis* Hagen; *E. filosa* Hagen; *E. tenebrosa* Say; *E. elongata* Scudder; *E. Walshii* Scudder; *E. forcipata* Scudder; *E. septentrionalis* Hagen; *E. albicincta* Burm.; *Epophthalmia taniolata* Ramb.; *Macromia cingulata* Ramb.; *M. Pacifica* Hagen; *M. annulata* Hagen; *M. Illinoiensis* Walsh; *M. transversa* Say; and describes as new *Cordulia libera*, *C. lepida*, *C. spinigera*, *C. basiguttata*, *C. Uhleri*, *C. regina*, *Epithea procera*, *E. semicircularis*, *E. Hudsonica*, *E. cingulata*, from the United States and British North America.

HEMEROBIIDÆ.

A. S. PACKARD, Jr. (3rd. Mem. Peab. Acad. Sci., p. 11) describes and figures the embryology of *Chrysopa oculata* Say.

ASCALAPHIDÆ.

R. MC LACHLAN (Linn. Soc. Journ., xi, 1871) revises the American species of this group and describes as new *Haploglenius flavicornis* De Selys, Cuernavaca, Mexico; *Ulula Mexicana* Mexico; *U. ampla* St. Domingo.

PANORPIDÆ.

R. MC LACHLAN (Ent. Month. Mag. viii, 1871) (describes as new, with a figure, *Bittacus apterus*, from California.

PHRYGANEIDÆ.

R. MC LACHLAN (Linn. Soc. Journ., xi, 1871) describes as new *Stenophylax gentilis*, White Mts. N. H., *S. limbatus*, Pl. ii, fig. 2, Newfoundland; *Neophylax* (gen. nov.) *concinus*, Pl. ii, fig. 3, New York; *Notidobia griseola*, Pl. ii, fig. 4, *N. nigricula*, Pl. ii, fig. 5; *Nosopus* (gen. nov.) *podager*, Pl. ii, fig. 6; *Heteroplectron Californicum*, Pl. iii, fig. 10, Cal.; *Macronema polygrammaticum*, Pl. iii, fig. 14, N. Amer.; *Smi-cridia* (nov. gen.) *fasciatella*, Pl. iv, fig. 19, Texas; *Tinodes consueta*, Pl. iv, fig. 22; *Agapetus celatus*, Pl. iv, fig. 23, Cal.

He also discusses the classification of the group and enumerates other N. American species.

A R A C H N I D A .

W. LEBARON (2d Rep. Ins. Ill.). The Grasshopper Parasite (with a figure).

J. LEIDY (Proc. Acad. Nat. Sci. Phila., Jan., 2, 138). On a Mite in the ear of the ox.

E. D. COPE (American Naturalist, vi, 406). On the Wyandotte Cave and its fauna.

P E D I P A L P I .

E. D. COPE (Amer. Nat., vi, 421) describes and figures as new *Erebomaster flavescens* from Wyandotte Cave, Ind. and *Phrixis longipes* from Mammoth Cave, Ky.

A C A R I N A .

W. LEBARON (2d Rep. Ins. Ill.) describes as new *Atoma gryllaria* from Ill.; a parasite on *Caloptenus femur-rubrum*.

J. LEIDY (Proc. Acad. Nat. Sci. Phila., Jan., 2 and 138) describes as new *Gamasus auris* found in the ear of the ox.

M Y R I O P O D A .

E. D. COPE (American Naturalist, vi, 406). On the Wyandotte Cave and its Fauna.

C H I L O G N A T H A .

E. D. COPE (Amer. Nat., vi, 414) notes the occurrence of *Spirostrephon cavernarum* Cope in Wyandotte Cave, Ind. He considers *Spirostrephon Copei* as the type of a distinct genus, *Scoterpes*.

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OF

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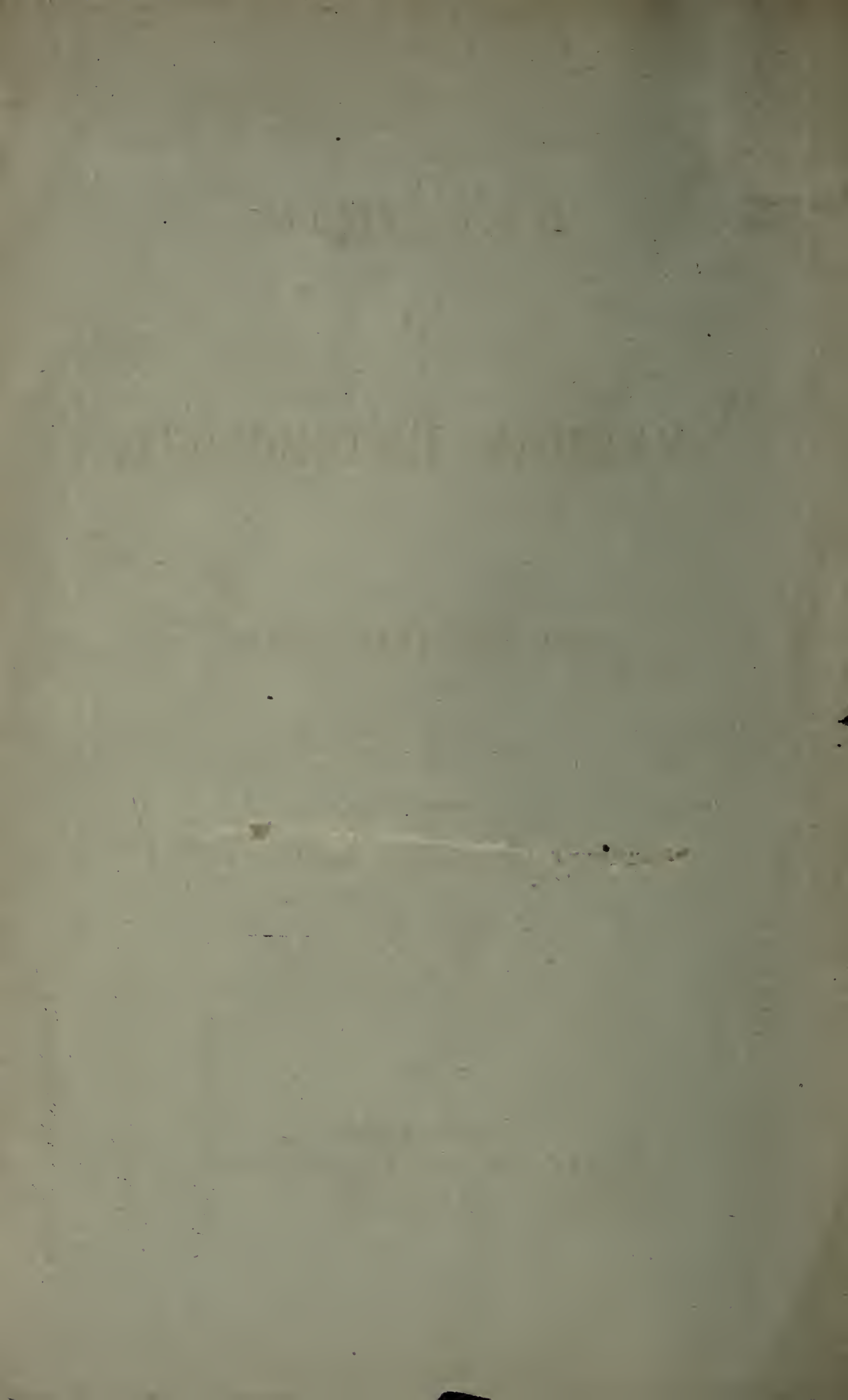
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*In this and other groups the editor has been materially assisted by Messrs. F. W. Putnam, Edward Norton, C. V. Riley, and F. G. Sanborn. Also in recording species described in foreign journals he is greatly indebted to the "Zoological Record," and Dr. Brauer's "Bericht." With the aid of these works he has been able to add references to species found in all that portion of the American continent north of and including the Isthmus of Panama. When the species were described previous to 1871 the dates are given.

RECORD OF AMERICAN ENTOMOLOGY

FOR THE YEAR 1871.

HYMENOPTERA.

G. J. BOWLES (Canadian Entomologist, iii, 7). Notes on *Nematus*.

W. SAUNDERS (Can. Ent., iii, 25). Hints to Fruit Growers.

E. B. REED (Can. Ent., iii, 210). Notes on *Megachile*.

P. S. SPRAGUE (Can. Ent., iii, 235). Parasite on *Pieris rapæ*.

F. WALKER (Trans. Ent. Soc., London, 1869, 313). Notes on Chalcididæ and description of a new species of *Megastigmus*.

F. WALKER. Notes on Chalcididæ. (London.)

W. LEBARON. First Annual Report on the Noxious Insects of the State of Illinois.

C. V. RILEY. Third Annual Report on the Noxious, Beneficial, and other Insects of the State of Missouri.

A. S. PACKARD, JR. (Amer. Naturalist, Vol. V). The Early Stages of Ichneumon Parasites, a review of Ganin's embryology of *Platygaster*, *Polynema*, *Teleas*, and *Ophioneurus*. Packard thinks that the facts discovered by Ganin bear strongly on Cope and Hyatt's theory of "acceleration and retardation," and considers that the ancestry of the insects should be traced directly to the worms and not the crustacea.

A. S. PACKARD, JR. First Annual Report on the Injurious and Beneficial Insects of Massachusetts.

CHARLES A. BLAKE (Trans. Amer. Ent. Soc., pp. 217-263). Synopsis of the Mutillidæ of North America.

GUSTAV MAYR (Verh. Zool. bot. Ges., Vienna, Dec., 1870). Describes twenty-six new species of North American Ants.

HENRI DE SAUSSURE (Rev. et Mag. Zool., Paris). Describes twenty-six new species of North American Solitary Wasps.

A. E. HOLMGREN (Kongl. Svenska Fregatten Eugenes Resa omkring Jordan. Zoologi; 1. Insecta Hym., pp. 391-442. Stockholm, 1868) gives descriptions of several new species of North American Hymenoptera.

E. TASCHENBERG (Giebel's Zeitschrift f. gesamt. Naturwissenschaften, Bd., 34, p. 407, 1869). Die Sphegiden des Zoologischen Museums der Universität in Halle. In this paper several American species are described as new.

APIDÆ.

E. H. T. (Amer. Nat. iv, 689) has observed that Bombi enter the corolla of *Salvia* and fertilize the flower.

E. B. REED (Can. Ent., iii, 210) notices (with a figure) the habit of *Megachile brevis* Say, in making its cells by rolling up the leaves of a tree.

VESPIDÆ.

HENRI DE SAUSSURE (Rev. et Mag. de Zool. Paris, 1871) describes as new *Odynerus (Symmorphus) debilis*, *O. Walshianus*, N. Am.; *Anciotrocerus conspicuus*, Mex.; *Odynerus Californicus*, Cal.; *O. Cordovæ*, Mex.; *O. scutellaris*, Cal.; *O. bidens*, Fla.; *O. arvensis*, *O. annectens*, N. Am.; *O. formosus*, Mex.; *O. turpis*, *O. molestus*, *O. pratensis*, *O. collega*, N. Am.; *O. cluniculus*, *O. propinquus*, Mex.; *O. Xanthianus*, *O. blandus*, Cal.; *O. Kennicottianus*, N. Am.; *O. Texensis*, Tex.; *O. Nortonianus*, N. Am.; *O. coyotus*, *O. zendalus*, *O. Nahuus*, *O. Olmecus*, Mex.; *O. dilectus*, N. Am.; *Pterochilus Aztecus*, *Pt. Mexicanus*, Mex., and *Alastor Mexicanus* from Mex.

A. E. HOLMGREN (Eugenes Resa, 1868) describes on p. 439 as new, *Polistes Panamensis* from Panama; p. 440, *Polybia Saussurei* from Cal. and Puna.

SPHEGIDÆ.

E. TASCHENBERG (Zeitschrift ges. Naturw., 1869) describes as new *Sphex Mexicana* from Mex. and *Ammophila anomala* from Illinois.

POMPILIDÆ.

E. TASCHENBERG (Zeitschrift ges. naturw., 1869) describes as new *Pompilus brevicornis*, *P. Mexicanus*, and *Salix tomentosus* from Mex.

MUTILLIDÆ.

CHAS. A. BLAKE (Trans. Amer. Ent. Soc., Feb., 1871, p. 217) describes as new *Psammotherma Ajax*, Fla.; *Mutilla Briaxus*, Pa.; *M. Grotei*, Col.; *M. Oajaca*, Mex.; *M. Promethea*, La.; *M. Sayi*, Tex.; *M. Leona*, *M. Cinaloa*, *M. Yucatana*, Mex.; *M. Copano*, *M. scæva*, *M. auripilis*, *M. Gorgon*, *M. Helaya*, *M. Comanche*, Tex.; *M. coccineo-hirta*, Cal.; *M. Sumichrasti*, Mex.; *M. Hector*, *M. Castor*, Kansas; *M. Bexar*, *M. Waco*, Tex.; *M. apicalata*, Mex.; *M. canella*, *M. macilenta*, Tex.; *M. obscura*, Mass.; *M. Azteca*, Mex.; *M. melanosoma*, Pan.; *M. trisignata*, Fla.; *M. Cressoni*, *M. Nortoni*, *M. Toluca*, *M. Ariadne*, *M. formosa*, *M. balopilus*, *M. Altimia*, *M. Xalisco*, Mex.; *M. Floridana*, Fla.; *M. Tolteca*, Mex.; *M. Cypris*, Ga.; *M. mutata*, *M. scævola*, *M. balteola*, Atlantic States; *M. Oceola*, Fla.; *M. Sanborni*, Mass.; *M. flavida*, Tex.; *M. laticeps*, *M. Xalapa*, *M. Hapoteca*, Mex.; *M. Gila*, Tex.; *M. Robinsoni*, *M. Lerma*, *M. bisignata*, *M. gothica*, *M. Izucar*, *M. Chiapa*, *M. petricola*, *M. auripes*, *M. minutissima*, *M. psammadroma*, Mex.; *M. Canadensis*, Can.; *M. Brazoria*, Tex.; *Agama mendica*, Nev.; *A. imperialis*, Tex.; *A. Nokomia*, Ariz.; *A. Danaus*, *A. melicausa*, *A. Tapajos*, Tex.; *A. triangularis*, Nev.; *A. pallida*, *A. hyalina*, *A. Belfragei*, Tex.; *A. Alcanor*, Ariz.

FORMICIDÆ.

GUSTAV MAYR (Verh. Zool. bot. Ges., Vienna, Dec. 7, 1870) describes as new *Camponotus vicinus*, U. S.; *Prenolepis parvula*, N. Y.; *Polyergus lucidus*, Conn.; (with *Formica Schaufussi* as slaves in their nest); *Hypoclinea plagiata*, Ill.; *Liometopum apiculatum*, *Platythyrea inconspicua*, *P. pruinosa*, *Guamptogenys concentrica*, *G. regularis*, *Lobopelta Mexicana*, *Cheliomyrmex Nortoni*, Mex.; *Eciton Californicum*, Cal.; *Pheidole inermis*, *P. Bilimeki*, *P. ursus*, Mex.; *P. Californica*, Cal.; *P. striaticeps*, *P. picea*, Mex.; *P. bicarinata*, Ill.; *Cremastogaster opaca*, *C. Sumichrasti*, *C. formosa*, *C. corvina*, *C. atra*, Mex.; *C. læviuscula*, *C. clàra*, Fort Cobb, Tex.; *C. minutissima*, Tex.; and others from South America.

ICHNEUMONIDÆ.

C. V. RILEY (Rep. Nox. Ins. Mo., 24) describes the habits of *Sigalphus curculionis* Fitch, with figures of the different stages, and describes as new *Porizon conotracheli*, both parasites of *Conotrachelus nenuphar* Herbst; on p. 158 *Microgaster limenitidos* n. sp., a parasite of *L. Disippus* God.

S. H. SCUDDER (Amer. Nat., v. 788) notices the occurrence of hymenopterous larvæ in an adult beetle (*Pimelia*) in Egypt.

A. E. HOLMGREN (Eugenies Resa, 1868) describes as new *Ichneumon astutus*; on p. 401 *Hemiteles gastricus*; p. 418, *Sagarites Californica*.

nica ; p. 405 *Pimpla transgressa*, *Bassus maculifrons*, *Limneria hospita*, and *Saprotichus* (n. gen.) *vitticollis* from Cal.

PROCTOTRYPIDÆ.

A. E. HOLMGREN (Eugenies Resa, 1868) describes on p. 434 as new *Proctotrupes Californica* from Cal.

CHALCIDIDÆ.

F. WALKER (Trans. Ent. Soc., London, 1869, p. 313) describes *Megastigmus albifrons* n. sp., from California.

F. WALKER (Notes, etc., 47) describes *Chalcis pubescens* n. sp., and *Smicra pompiloides* n. sp. from Mexico.

W. LEBARON (Rep. Nox. Ins., Ill., 32) describes *Aphelinus mytilaspis* n. sp., destructive to *Mytilaspis conchiformis*.

C. V. RILEY (Rep. Nox. Ins. Mo., 157) provisionally describes as new *Trichogramma? minuta*, an egg-parasite of *Limenitis Disippus* God. (It differs from *Trichogramma* in having only 5-jointed antennæ, and Mr. Riley has since given it the MS. name of *Pentarthron minutum*.)

P. S. SPRAGUE (Can. Ent., iii, 235) notes the discovery of the parasitism of *Pteromalus puparum* (Linn.) on *Pieris rapæ*.

J. A. LINTNER (Amer. Nat., v. 725) notices the parasitism of *Pteromalus puparum* Linn. on *Pieris rapæ* Schrank, in New York.

A. E. HOLMGREN (Eugenies Resa, 1869) describes as new *Brachymeria Panamensis*, from Panama.

TENTHREDINIDÆ.

G. J. BOWLES (Can. Ent., iii, 7) notes the habits of *Nematus ventricosus* Klug.

W. SAUNDERS (Can. Ent., iii, 25) notices the habits of the same.

W. LEBARON (Rep. Nox. Ins. Ill., 79) gives an account of the habits of *Selandria rosæ* Harris.

A. S. PACKARD, JR. (Rep. Inj. Ins. Mass., p. 6) notices the habits of *Nematus ventricosus* Klug, and *Pristiphora grossulariæ* Walsh.

LEPIDOPTERA RHOPALOCERA.

C. J. S. BETHUNE (Can. Ent., iii, p. 81) gives a list of seventeen butterflies taken on the borders of Lakes Huron and Superior.

W. H. EDWARDS (Butterflies of N. A., parts 8 and 9). The following species have been figured and described in this magnificent work, during the year 1871:—*Neophasia menapia* (= *Pieris tau*), *Pieris Beckerii*, n. sp., *P. vernalis*, *P. Virginensis*, *Argynnis Nevadensis*, *Grapta comma*, *G. dryas*, *G. interrogationis* vars. *umbrosa* and *Fabricii*, *Papilio Ajax* vars. *Walshii*, *Telamonides* and *Marcellus*.

W. H. EDWARDS (Trans. Amer. Ent. Soc., Vol. iii, pp. 189–196), describes fourteen new species.

W. H. EDWARDS (Can. Ent., iii, p. 70, 162). Rearing butterflies from the egg. This article contains an account of experiments in raising the varieties of *Papilio Ajax* and *Grapta interrogationis*.

W. F. KIRBY. A Synonymic Catalogue of Diurnal Lepidoptera. London. Van Voorst. This work is indispensable to Lepidopterists, being a complete catalogue of described butterflies of the whole world.

A. R. GROTE (Can. Ent., ii, p. 165). On *Thecla inorata* G. and R., and *T. falacer* Godt. This paper criticizes Mr. Scudder's article "On the Synonymy of *Thecla calanus*" (Proc. Bost. Soc. Nat. Hist.), and gives Mr. Grote's views of the true synonymy of these species.

A. R. GROTE (Can. Ent., iii, p. 101), gives a list of Lepidoptera taken near Demopolis, Ala., and describes *Thecla Dolichos* Hübn.

J. A. LINTNER (Trans. Amer. Ent. Soc., iii, p. 197). On *Grapta interrogationis* and *G. Fabricii* of Edwards. In this paper exception is taken to Mr. Edwards' remarks on these forms. Mr. Lintner gives anew his reasons for applying the name *interrogationis* to the red winged, and *umbrosa* to the dark winged forms.

H. W. PARKER (Can. Ent., iii, p. 51), describes the male of *Hesperia conspicua* Edw. taken in Iowa, July 4.

H. W. PARKER (Can. Ent., iii, p. 112). The Nisoniades Butterflies. This paper contains brief descriptions of the markings of several species of this genus. Mr. Parker doubts the distinctness of *N. Horatius* and *Virgilius*, and also of *Ennius* and *Juvenalis*.

E. B. REED (Can. Ent., iii, p. 95), continues his accentuated list of Canadian Lepidoptera.

C. V. RILEY (Can. Ent., iii, p. 52). How to distinguish between *Limenitis Disippus* Godt. and *L. ursula* Fabr., in their preparatory states.

C. V. RILEY (Third Report on the Insects of Illinois, pp. 142-175). The Natural History of *Danaus Archippus* and *Limenitis Disippus*. This is a good account of the life history of these butterflies, containing also descriptions of their parasites and remarks on "Mimicry."

S. H. SCUDDER (Entomologist's Monthly Mag. Nov. No. 90). On the Embryonic Larvæ of Butterflies. (Reprinted in the Can. Ent., iv, p. 45.) This article contains descriptions of the youngest stages of the larvæ of *Satyrus*, *Hipparchia*, *Limenitis*, *Grapta*, *Argynnis*, *Melitæa*, *Lycæna*, *Colias*, *Pieris*, *Papilio* and *Hesperia*.

H. B. MOESCHLER (Entomologische Zeitung, Stettin, 1870, p. 113, 251). Beiträge zur Schmetterlingsfauna von Labrador. The author gives synonymical and critical remarks on the butterflies of Labrador, with a list of additions to the fauna by Scudder and Packard.

J. A. BOISDUVAL (Annales de la Soc. Entomologique de Belgique. T. xii, 5, 1869) describes the Lepidoptera collected in California by Lorquin.

J. A. BOISDUVAL (Considerations sur les Lépidoptères envoyés du Guatemala à M. de l'Orza. 8vo. Rennes. 1870. pp. 100. Many of his new species are synonymes (see Zool. Record. 1870).

A. G. BUTLER (Cistula Entomologica, 1. 1869, 13). Contains descriptions of new Butterflies from Cuba.

A. G. BUTLER (Ent. Month. Mag., vi, 250, 1870). On new or recently described species of Diurnal Lepidoptera. Several Butterflies from Central America and Mexico are described and figured.

A. G. BUTLER (Proc. Zool. Soc. London. 525). A Revision of the species formerly included in the Genus *Terias* (Pierinæ). Treats of the synonymy of the American species.

A. G. BUTLER (Annals and Mag. Nat. Hist., 282). Descriptions of some new species of Lepidoptera, chiefly from the collection of Mr. W. Saunders. Contains the description of a new butterfly from Honduras.

A. G. BUTLER (Lepidoptera Exotica, or Descriptions and Illustrations of Exotic Lepidoptera. Pts. 1, 2, 1869, 3-6, 1870). Contains descriptions of several Central American species.

A. G. BUTLER (Trans. Ent. Soc., 1870, 9). Descriptions of six new species of Callidryas. Four of the species are from the West Indies, Central America and Mexico.

R. FELDER (Verhandlungen d. K. K. Zool.-Bot. Gesellschaft, xix, 469, 1869). Contains descriptions of Central American butterflies.

W. C. HEWITSON (Ent. Month. Mag., vi, 68, 1860) describes a new butterfly from Nicaragua.

W. C. HEWITSON (Trans. Ent. Soc., London, 33, 1869) describes a new butterfly from Nicaragua.

NYMPHALIDÆ.

W. H. EDWARDS (Butt. N. Amer., Pts. 8 and 9) describes and figures *Argynnis Nevadensis* Edws.; *Grapta comma* Harr., *G. dryas* Edws., *G. interrogationis* Fabr., vars. *umbrosa* Lint., and *Fabricii* Edws.; giving his experiments to prove the varietal nature of these two latter forms.

W. H. EDWARDS (Can. Ent. iii, p. 71) states that he has raised both *Grapta interrogationis* (Edws.) and *G. Fabricii* (Edws.) from eggs laid by the former.

W. H. EDWARDS (Can. Ent. ii, p. 162) describes the larva and pupa of *Melitæa Harrisii*, which were found by Mr. T. L. Mead, feeding on *Actinomeris helianthoides* Nutt.; and also the same stages of *Euptoieta Claudia*.

W. H. EDWARDS (Trans. Amer. Ent. Soc., iii, pp. 189-193) describes the following new species, *Argynnis Bischoffii*, from Alaska; *Melitæa Sterope*, from Oregon; *M. Thekla*, Cal.; *Eresia punctata*, Arizona; *Chionobas Stretchii*, Nevada; *Satyrius Gabbii*, Oregon.

C. V. RILEY (Can. Ent., p. 52) describes the differences in the larval and pupal stages of *Limenitis Disippus* and *L. Ursula*, which are limited to the anterior horns of the larva, and the dorsal hump of the pupa.

C. V. RILEY (Third Rep. on Insects of Ill.) gives the Natural History of *Danaïis Archippus* and *Limenitis Disippus*.

W. SAUNDERS (Can. Ent., iii, p. 156) records *Danais Archippus* swarming on the borders of Lake Erie.

P. S. SPRAGUE (Can. Ent., iii, p. 157) records this butterfly swarming also in New England.

S. H. SCUDDER (Ent. Monthly Mag. No. 90, p. 122) describes early larval stages in the genera *Satyrus*, *Hipparchia*, *Limenitis*, *Grapta*, *Argynnis* and *Melitæa*.

H. B. MÖSCHLER (Ent. Zeit. Stettin, 116) gives descriptions and remarks on the Labrador species of *Chionobas*.

A. G. BUTLER (Ent. Month. Mag., vi, 1870, 250) describes as new, with figures, *Euptychia Gulnare*, from Panama.

J. A. BOISDUVAL (Ann. Soc. Ent., Belgique, 5, 1869) describes as new *Melitæa Callina*, *M. Epula*, *M. Orsa*, *M. Helcita*, *M. Pola*, *M. Sonoræ*, *M. Leanira*, *Argynnis Epithore*, *A. Mormonia*, *A. Egleis*, *A. Juba*, *A. Hydaspæ*, *A. Adiante*, *Chionobas Californica* and *Satyrus ætus* from Cal.

A. G. BUTLER (Cist. Ent., 4, 1869) describes as new *Morpho Luna* from Mex. In Cist. Ent., ii, 1870, 26, he describes as new *Lymanopoda Issacha* and *Pedaliodes Oaxes* from Cuba.

A. G. BUTLER (Lep. Exot., iii, 1870, 17) describes and figures as new *Taygetis jimna* from Panama.

W. C. HEWITSON (Trans. Ent. Soc., London. 1869, 34) describes as new *Eresia Alsina*, *Eubagis Sosthenes* and *Hætera polita* from Nicaragua.

W. C. HEWITSON (Ent. Month. Mag., vi, 1870, 177) describes as new *Opsiphanes orgetorix* from Chontales.

J. A. BOISDUVAL (Lep. Guat., 1870, 56-58) describes as new *Pavonia Dardanus* from Honduras, Guatemala, and Columbia, *P. Scamander* from Guatemala, Nicaragua and Venezuela, and *Eriphanis Wardii* from Guatemala and Nicaragua, *Hætera Heracles* Boisd. (= Pap. Luna var? probably = *H. pallida* or *H. rubecula* Salv. and Godm.) Zool. Record from Honduras, *Neonympha metaleuca* and *Taygetis Cecilia* from Guatemala.

R. FELDER (Verh. K. K. Zool. bot. Ges., xix, 1869, 465) describes as new from Mexico, *Eresia pallescens*, Puebla, *E. graphica*, Huahuapan, *E. socia*, *E. Archesilea*, Cordoba, *E. obscurata*, Rio-Atajac, *Synchloe misera* Boisd. in litt., Huahuapan, *Myscelia Rogenhoferi*, Huahuapan, *Epicalia Esite* Boisd. in litt., Potrero, *Pyrrhogyra Neis*, Atajac, *Heterochroa Emathia*, *Nymphalis Hedemanni*, *N. Pithyusa*, Potrero, *N. Callidryas*, Cordoba, *Cyllopsis* (n. gen. allied to *Taygetes*) *Hedemanni*, Potrero, *Pindis* (n. gen. allied to *Taygetes*) *squamistriga*, Huahuapan, Cuernavaca.

HELICONIDÆ.

W. C. HEWITSON (Trans. Ent. Soc., London, 33, 1869) describes as new *Heliconia Diotrephes* from Nicaragua.

J. A. BOISDUVAL (Lép. Guat., 1870, 29) describes as new *Heliconia Rosina* from Costa Rica and Mex., *H. Euryus* from Guat., *H. Thetis* from Nic., *Ithomia fizella* and *I. depauperata* from Guat.

LYCÆENIDÆ.

G. J. BOWLES (Can. Ent., p. 179) reports the capture of *Polyommatus Porsenna* for the first time in the neighborhood of Quebec.

W. H. EDWARDS (Trans. Amer. Ent. Soc., iii, pp. 193-194) describes as new, *Thecla Dryope*, Cal.; *Lycæna Mintha*, Nevada, and *L. Fulla*, Cal.

A. R. GROTE (Can. Ent. iii, p. 101) describes *Thecla Dolichos* Hübn.

A. R. GROTE (Can. Ent. ii, p. 165) gives the synonymy of *Thecla inorata* G. and R. and *T. Falacer* Godt.

S. H. SCUDDER (Ent. Monthly Mag. No. 90, p. 122) describes early larval states in *Lycæna*.

H. B. MÖSCHLER (Ent. Zeit. Stettin, 144) gives a description of *Polyommatus Epixanthe* Bd. and Lec., from Labrador.

J. A. BOISDUVAL (Ann. Soc. Ent. Belgique, 1869, 43) describes as new *Thecla Borus*, *T. Nelsoni*, *Polyommatus nivalis*, *P. Zeræ*, *Lycæna regia*, *L. lupini*, *L. nivium*, *L. Philemon*, *L. rufescens*, *L. erymus*, *L. Polyphemus*, *L. Erius*, *L. Nestor*, *L. Phileros*, *L. Rhæa*, and *L. Suasa*, from Cal.

J. A. BOISDUVAL (Lép. Guat., 1870, 13) describes as new *Eumenia Godartii* "(= *Toxæa* Godt." Zool. Rec.) from Guatemala, and *E. Toxana*, *Thecla gauna* from Costa Rica, *Lycæna cassioides* "(= *Pol. Piri-thous* Godt. nec Linn." Zool. Rec.) from Honduras and Mexico, *L. cassidula* from Honduras, *L. nyagora* and *L. gozora* from Honduras and Mexico.

PAPILIONIDÆ.

C. J. BOWLES (Can. Ent., iii, p. 179), records the capture of *P. Asterias* for the first time at Quebec.

W. H. EDWARDS (Butt. N. Amer., Pt. 8) figures and describes *Neophasia menapia* Felder (= *Pieris tau* Scudd.); *Pieris Beckerii* n. sp., *P. vernalis* Edws. and *P. Virginiensis* Edws.; also, in Part 9, three varieties of *Papilio Ajax* Linn. viz.:—*Walshii* Edws., *Telamonides* Feld. and *Marcellus* Boisd., giving also his experiments in breeding to prove that these forms are only varietal.

W. H. EDWARDS (Can. Ent. ii, p. 162, and iii, p. 70). Experiments in raising *Pap. Ajax* and its varieties. From one batch of one hundred and twenty-five eggs he has raised fifty-eight *Marcellus*, one *Walshii* and one *Telamonides*.

W. H. EDWARDS (Trans. Amer. Ent. Soc., iii, p. 189) describes *Pieris Calyce* n. sp., from Nevada.

W. H. EDWARDS (Can. Ent., ii, p. 179) surmises, from the results of breeding, that at least two species pass under the name of *Colias Philodice*.

J. M. JONES (Can. Ent., iii, p. 37) records *Pieris rapæ* abundant about Halifax, N. S., in June, 1871.

H. W. PARKER (Amer. Nat. iv, p. 761) records the capture of *Callidryas Eubule* at New Bedford in the summer of 1870.

S. I. SMITH (*ibid.*) reports the same butterfly at Fire Island, near Long Island, N. Y.

S. H. SCUDDER (Ent. Monthly Mag., No. 90, p. 122) describes the young stages of the larvæ in the genera *Papilio*, *Pieris* and *Colias*.

J. A. BOISDUVAL (Ann. Ent. Soc., Belgique, 5, 1869) describes as new *Pieris Ninonia*, *P. nasturtii*, *P. resedæ*, *P. iberidis*, *Anthocaris Angelina*, *A. ausonides* [? = *ausonia*, see Brauer's Berichte] from Cal.

J. A. BOISDUVAL (Lep. Guat., 1870, 7) describes as new *Papilio Lycimenes* " (= *Iphidamus* Gray *nec* Fabr.) from Costa Rica " Zool. Rec.

A. G. BUTLER (Trans. Ent. Soc., 1870, 9) describes as new *Callidryas virgo* from Mex. and N. Grenada, *C. Hartonia* from Jamaica, *C. Editha* from Haiti, *C. Jada* from Guatemala.

A. G. BUTLER (Cist. Ent., 1869, 13) describes as new *Callidryas minuscula* from Havana.

A. G. BUTLER (Ann. Mag. Nat. Hist., iv, 1869, 202) describes as new *Callidryas rorata* from St. Domingo.

R. FELDER (Verh. d. K. K. Zool.-bot. Ges., xix, 465, 1869) describes as new *Terias ingrata* from Potrero, *T. Sidonia* from Campeche, *T. Nelphe*, *T. celata*, and *T. Leucilla* from Potrero.

W. C. HEWITSON (Ent. Month. Mag., vi, 68, 1869) describes as new *Leptalis Deione* from Nicaragua.

HESPERIIDÆ.

W. H. EDWARDS (Trans. Amer. Ent. Soc., iii, p. 195-9) describes the following new species: *Syrichtus Petricus*, from Nevada; *Cyclopides Skada*, Kodiak; *Hesperia minima*, Texas.

H. W. PARKER (Can. Ent., iii, p. 51) describes the male of *Hesperia conspicua* Edws., from a specimen taken in Iowa, July 4.

H. W. PARKER (Can. Ent., p. 112) doubts the distinctness of *Nisoniades Horatius* and *Virgilius*, and also of *Ennius* and *Juvenalis*, separated by Scudder and Burgess. In the same article brief descriptions of *N. Juvenalis*, *N. Martialis*, *N. Brizo*, *N. Horatius*, *N. Persius*, *N. Lucilius* and *N. Icelus* are given.

S. H. SCUDDER (*loc. cit.*) describes the early larval characteristics of *Hesperia*.

A. G. BUTLER (Trans. Ent. Soc. 1870, 492) describes as new, *Goniuris Corydon* from Cuba, *Eudamus epigena* from Mexico, *Æthilla jariba* from Cuba, and *Æ. jaira* from West Indies, *Phlebodes unia* from St. Domingo.

R. FELDER (Verh. K. K. Zool.-bot. Gesell. xix, 1869, 465) describes as new from Mexico *Ancyloxypha simplex*, Cordoba, Potrero, *Leucochitonea lugubris* Orizaba, *L. pastor*, Lerma, *L. canescens*, Potrero, *L. pulcherius*, *L. hyalophora*, *L. pulverulenta*, Orizaba, *L. emorsa* and *L. funebris*, Cuernavaca, *Helias pallida*, Jalapa.

ERYCINIDÆ.

W. H. EDWARDS (Trans. Amer. Ent. Soc., iii, pp. 195-196) describes as new, *Lemonias Palmerii*, Utah.

S. H. SCUDDER (Ent. Monthly Mag., No. 60, p. 122) describes the early larval characteristics of *Lycæna*.

A. G. BUTLER (Ann. and Mag. Nat. Hist., 283) describes for the first time *Emesis clearista* Doublt., MS., from Honduras.

A. G. BUTLER (Ent. Month. Mag., vi, 1870, 252) describes as new *Nymphidium lilina* from Mexico.

A. G. BUTLER (Ann. Mag. Nat. Hist. 1870, v, 364) describes as new *Emesis zela* from Venezuela and Mex., *Chanis Libua* from Mexico?

A. G. BUTLER (Cist. Ent., ii, 1870, 31, Lep. Exot. Pl. 14, fig. 5) describes and figures *Aricoris Jansone* from Chontales.

W. C. HEWITSON (Trans. Ent. Soc. London, 1869, 35) describes as new, *Mesosemia asa* and *Nymphidium Onæum* from Nicaragua.

W. C. HEWITSON (Ent. Month. Mag., vii, 1870, 3; and with figure in Exot. Butt. 75) describes as new, *Necyria beltiana* from Nicaragua, *Lymnas? Bryaxis*, *Emesis lacrines*, *Symmachia leena*, *S. Threissa*, *S. cleonyma*, *Mesene Xypete*, *Lemonias Lasthenes*, *Aricoris Cleomedes* from Chontales.

J. A. BOISDUVAL (Ann. Ent. Belgique, 1869) proposès *Chrysobia*, as a new genus for *Lemonias mormonia* Felder.

J. A. BOISDUVAL (Lép. Guat. 1870, 19, 20) describes as new, *Erycina Zinna* from Nicaragua and Columbia, *E. Erigone* from Honduras and Mexico, *Nelone aurimma* from Guat., *Mesene Hewitsonii*, *M. simbla*, *M. niciades* and *M. macularia* from Guat. and Honduras, *Hypophylla umbra* from Honduras, and *Desmozona ascolides* from Guatemala.

LEPIDOPTERA HETEROCERA.

C. V. RILEY. Third Annual Report on the Noxious, Beneficial and other Insects of Missouri.

W. LEBARON. First Annual Report on the Noxious Insects of Illinois.

A. S. PACKARD, JR. (Proceedings Boston Soc. Nat. Hist., xiii, 381). Catalogue of the Phalænidæ of California.

A. S. PACKARD, JR. First Annual Report on the Injurious and Beneficial Insects of Massachusetts.

A. S. PACKARD, JR. (Second and Third Ann. Rep. Peab. Acad. Science, p. 85). List of Insects collected at Pebas, Ecuador, and presented by Prof. James Orton.

E. B. REED (Canadian Entomologist, iii, 5). The Plum Sphinx Moth.

G. J. Bowles (Can. Ent., iii, 7). Quebec Currant Worms; p. 144, List of Lepidoptera taken at Quebec; p. 201, Notes on *Samia Columbia*.

W. SAUNDERS (Can. Ent., iii, 12, 25, 66, 149). Hints to Fruit Growers; p. 14, Entomological Gleanings; p. 22, On the Larva of the Peach Borer; pp. 35, 225, Notes on Lepidopterous Larvæ; pp. 76, 130, 186, 193.

V. T. CHAMBERS (Can. Ent., iii, 23). A new species of *Cemiostoma*; pp. 54, 84, 108, 127, 146, 161, 182, 205, 221, Microlepidoptera.

W. COUPER (Can. Ent., iii, 32, 61, 178). Entomology, i-iii.

C. J. S. BETHUNE (Can. Ent., iii, 81). Entomological Notes during a Trip to Lakes Huron and Superior.

A. R. GROTE (Can. Ent., iii, 101, 124, 181, 192). Descriptions of Lepidoptera from Alabama; pp. 192. Description of a species of *Agrotis* from Canada.

CHAS. R. DODGE (Can. Ent., iii, 167). Description of a new *Arctia* from Colorado.

F. G. SANBORN (Proc. Bost. Soc. Nat. Hist., xiii, 205). Habits of *Callosamia Promethea*.

H. B. MOESCHLER (Ent. Zeit. Stettin, 251, 265, 364) in Bei-

träge zur Schmetterlingsfauna von Labrador, gives a list of Labrador moths, with descriptive and synonymical remarks.

A. G. BUTLER (Proc. Zool. Soc., London, 79). Descriptions of some new species of exotic Lepidoptera. Contains a note relative to *Coloradia Pandora* Blake.

A. G. BUTLER (Lep. Exot., 1870) describes several new Central American forms.

J. A. BOISDUVAL (Ann. Soc. Ent., Belgique, 1869) describes new Californian Sphingidæ and Bombycidæ.

L. W. SCHAUFUSS (*Nunquam Otiosus*. Die Exotischen Lepidoptera Heterocera der früher Kaden'schen Sammlung, 1870, 7-23). Contains a few Central American Sphingidæ and Zygænidæ.

A. SPEYER (Ent. Zeitung Stettin, 1870, 400). Europaisch-amerikanischer Verwandtschaften. He thinks that the Lepidoptera of Europe and America have had a common descent, and indicates in ancient times a continental connection across the Atlantic ocean.

G. A. W. HERRICH-SCHLÆFFER. Die Schmetterlinge der Insel Cuba. Regensburg, 1870. Contains descriptions of new Phalænidæ.

SPHINGIDÆ.

C. V. RILEY (Rep. Nox. Ins. Missouri, 140), figures *Deilephila lineata* and two varieties of its larva.

A. S. PACKARD, JR. (Rep. Peab. Acad., 85) records *Philampelus Anchemolus* (Cram.), *Amphonyx Duponchel* Poey, from Pebas, Peru.

E. B. REED (Can. Ent. iii, 5) gives the history, with figures, of *Sphinx drupiferarum*, Sm.-Abb.

A. SPEYER (Ent. Zeit., Stettin, 1869, 83) regards the American *Sphinx lineata* as different from the European one of the same name, which he calls *S. livornica* E.

J. A. BOISDUVAL (Ann. Ent. Soc. Belgique, 1869, 66) describes as new *Macroglossa Thetis*, *M. Erato Sphinx segoicæ*, *S. strobi*, *Smerinthus ophthalmicus* from Cal.

J. A. BOISDUVAL (Lép. Guat. 1870, 66) describes as new *Macroglossa corvus* from Nicaragua, *Perigonia caliginosa* (Feld. ined.) *P. ilus* from Honduras and Mex., *Aleuron chloroptera* ("probably = *Sphinx chloroptera* Perty" Zool. Rec.) from Guatemala, Honduras and Para, *Ambulyx rostralis* (Feld. ined.) from Nicaragua and New Grenada, *Charocampa aristor* from Guat., *C. fugax* from Hond. and Mex., *Sphinx sesqui-*

plex (Feld. ined.) from Guat., *S. merops* from Hon. and Mex., *S. andromedæ* from Hond. and Oajaca, *Anceryx Rhæbus* from Hond. and Mex., *A. omphalæ* from Brazil and Nicaragua.

L. W. SCHAUFUSS (Nunq. Ot. Lep. Exot., 1870) describes as new *Macroglossa Cunninghamsi* from Nicaragua, *Chærocampa curvatus* from Cuba.

ÆGERIADÆ.

C. V. RILEY (Rep. Nox. Ins. Missouri, 75) describes and figures *Ægeria polistiformis* Harr.

G. J. BOWLES (Can. Ent., iii, 7) notices briefly the habits of *Ægeria tipuliformis* (Linn.)

W. SAUNDERS (Can. Ent., iii, 22) publishes a description of the habits of *Ægeria exitiosa* Say, with a figure.

J. A. BOISDUVAL (Ann. Soc. Ent., Belgique, 1869, 63) describes as new *Sesia nomadepennis*, *S. chrysidipennis*, and *S. bibionipennis* from Cal.

ZYGÆNIDÆ.

C. V. RILEY (Rep. Nox. Ins. Missouri, 63) figures and describes *Psychomorpha epimenis* (Drury) and its larva, and shows wherein its larva differs from those of *Alypia octomaculata*, *Eudryas grata* and *E. unio*, all of them closely resembling each other and feeding on grape-vine.

A. G. BUTLER (Lep. Exot. vi, 1870) describes and figures as new *Castnia diva* from Chontales.

J. A. BOISDUVAL (Lép. Guat. 1870, 81) describes as new *Mastigocera Œdippus* and *M. clavipes* from Guat. and Mex.

BOMBYCIDÆ.

C. V. RILEY (Rep. Nox. Ins. Missouri, 68) notices and figures *Spilosoma Virginica* (Fabr.) in its different stages; p. 117, *Clisiocampa Americana* Harr. and *C. sylvatica* Harr.; p. 130, *Hyphantria textor* Harr.; p. 132, *Callimorpha fulvicosta* Clem.

W. LEBARON (Rep. Nox. Ins. Illinois, 13) notices the habits of *Orgyia leucostigma* (Sm.-Abb.), *Hyphantria textor* Harr.; p. 47, *Callimorpha fulvicosta* Clem.

A. S. PACKARD, JR. (Rep. Peab. Acad., 85) describes as new *Attacus Amazonia*, and records *Zeuzera* (*Endoxyla*) *xylotribus* H. Sch. from Pebas, Peru.

W. SAUNDERS (Can. Ent., iii, 14) gives a long note on the eggs of *Orgyia leucostigma* (Sm.-Abb.) On p. 36 he describes the larva of *Gnophria vittata* Harr., and *Hyphantria cunea* (Drury).

A. R. GROTE (Can. Ent., iii, 124) describes as new *Pygarctia abdominalis*, and gives a note on *Parorgyia leucophæa* from Alabama.

W. SAUNDERS (Can. Ent., iii, 149) gives an account of the habits of *Platysamia Cecropia* (Linn.) with figures; on p. 186 he describes the

larva of *Halesidota maculata* Harr. ; and on p. 227 that of *Euphanessa mendica* (Walk.)

J. A. BOISDUVAL (Ann. Soc. Ent., Belgique, 1869, 85) describes as new *Agarista dipsaci*, *A. Lorquinii*, *A. Sacramenti*, *A. Mariposa*, *A. Grotei*, *Ctenucha corvina*, *C. Robinsonii*, *C. Harrissii*, *Callimorpha guttata*, *Nemeophila cæspitis*, *N. cichorii*, *Chelonia autholea*, *C. Achaia*, *C. Doris*, *C. Nerea*, *Arctia sciurus*, *Phægoptera cinnamomea*, *P. quercus*, *P. salicis*, *Lithosia Decia*, *L. adnata*, *L. Lena*, *L. faustinula*, *L. nexa*, *Saturnia ceanothi* (= *Euryalus* Boisduval olim.) *Telea eglanterina*, *Bombyx pseudoneustria*, *Dicranura scolopendrina*, *Clostera incarcerationata*, *Gluphisia crenata*, *Hepialus hectoides* and *H. Californicus* from Cal.

CHAS. R. DODGE (Can. Ent., iii, 167) describes as new *Arctia Williamsii* from Colorado Terr., with a figure.

G. J. BOWLES (Can. Ent., iii, 201) notices the occurrence in Canada of *Platysamia Columbia* (Smith), with notes on its habits.

F. G. SANBORN (Proc. Bost. Soc. Nat. Hist., xiii, 205) notices the habits of *Callösamia Promethea* (Drury).

H. B. MÖSCHLER (Ent. Zeit. Stettin, 251) considers Grote's *Hepialus pulcher* as a synonyme of *H. hyperboreus* Möschler, and thinks it possible that *H. Labradoriensis* Pack. is the female of *H. hyperboreus*. On p. 252 he redescribes *Dasychira Rossii* (Curt.) from four fresh male and female specimens. He also regards *Edapteryx bilineata* Pack. as identical with the European *Platypleryx lacertinaria* Linn.

A. G. BUTLER (Proc. Zool. Soc., London, 83) refers Blake's *Coloradia Pandora* to the genus *Dirphia* of F. Walker. Butler's *D. venata* is from Buenos Ayres.

H. LANDOIS (Corr. Blatt. d. Ver. d. Preuss. Rheinlande, 3 Folgi. 6 Jahrg., 1869, 84). On a new (?) American silk worm, *Saturnia Cecropia* and *Cyclops*.

J. A. BOISDUVAL (Lép. Guat., 1870) "describes as new *Ctenucha venosa* Walk." (Zool. Rec.) and describes as new *Melandia* [Melanchroia] *æquinoctialis* from Guat. and Hond., *Epilais* [Dioptis, sect. Hyrmina] *æquatorialis* (Feld. ined.) from Hond., Mex., Guat., *E. zetila* from Guat., *E. melda* from Nicaragua and Quito, *Ditaxis* [Dioptis] *sora* from Guat., *Charidea arrogans* from Guat., Hond., *C. hæmatodes* and *C. eximia* from Hond. and Mex., *Ctenucha salatis*, *C. pollinia* from Hond. and Guat., *C. opaca* from Hond., Guat., Mex., *Letocles* [Siosta] *alcera* from Nicaragua and Amazon, *L. Decia* from Guatemala, *Milodora agis* from Nicaragua, *Thebrone* [Pericopis] *arema* from Nicaragua and Venezuela, *T. rubrimargo* from Hond. and Mex., *Aphisaon* [Pericopis] *salvatoris* from Hond. and Guat., *Evagra* [Dioptis] *notochloris* from Hond., *E. jalifa* from Hond. and Mex., *E. affinis* from Hond. and Guayaquil, *Cocastroa gentilis*, *C. melanchroia* (Feld. ined.) from Guat., *Calepidos* [Esthema] *celina* from Guat., *C. anacharis* from Nicaragua, *Che-*

tone [Pericopis] lorzæ, *C. phæba*, *C. aorsa* from Guat., *C. iscarotes* from Hond. and Guat., *C. Felderi* from Nic., *C. heliconides* from Guat., *Xanthyrus* [Chrysaugæ] *pseudisis* from Nic. and Venezuela, *X. adunca* from Nic. and Bogota, *X. basina* from Guat. and Venezuela, *X. osera* from Hond. and Mex., *Pyralopsis divisa* from Guat., *Retila* (Josia) *pseudena*, *R. enoides* from Hond. and Mex., *Lithosia cordula* from Hond. Mex., *L. sanguineola* from Guat., Mex., *Doracis coracina*, from Hond., Mex., *Euchelia jeuna* from Guat., Mex., *Dorimena* (Daretis) *magdala*, *Spilosoma dilecta* from Hond., Mex., *Phægoptera albiguttata* from Hond.

A. G. BUTLER (Cat. Lep. Fabr. 291, and Lep. Exot. vi, 1870, 46) describes as new *Pericopis Jansonis* from Chontales.

NOCTUIDÆ.

C. V. RILEY (Rep. Nox. Ins. Missouri, 70) gives the history of *Acronycta oblinita* Sm. and Abb., with figures; also (p. 72) of *Amphipyra pyramidoides* Guen., with two varieties, *fulvosa* and *obscura*; p. 104, *Heliothis armigera* (Hübner.); p. 109, *Prodenia autumnalis* Riley, and describes as new *A. conspersa*. On p. 134 he describes as new *Xylina cinerea*.

W. LEBARON (Rep. Nox. Ins. Illinois, 52) describes the larva of *Acronycta superans* Guen.; on p. 56 he notices the habits of *Amphipyra pyramidoides* Guen.

A. S. PACKARD, JR. (Rep. Peab. Acad., 87) records *Crino bellatrix* (Cram.) and *Letis xylia* Guen? from Pebas, Peru.

W. SAUNDERS (Can. Ent., iii, 35) describes the larva of *Noctua clandestina* (Drury); on p. 193 he describes the larva of *Agrotis depressus* Grote, and on p. 226 that of *Acronycta oblinita* (Sm. Abb.)

A. R. GROTE (Can. Ent., iii, 192) describes as new *Agrotis depressus** from Canada, allied to *A. clandestina*.

H. B. MÖSCHLER (Ent. Zeit., Stettin, 254) adds to the list of Labrador Noctuids *Agrotis conflua* Fehr., an European species, *A. Staudingeri* Mösch., *A. lætabilis* Zett., a Finmark species, *A. Islandica* Stmgr., an Iceland species, *A. ypsilon* Hfngr. (= *A. suffusa* S. W.), an European species, and *A. occulta* Linn., var. *implicata* Lefbr., also European, and *Anarta Zetterstedtii* Staud., also found in Norway and Lapland. He regards (p. 265) *Agrotis littoralis* Pack. as = *Pachnobia carnea* Thngb.; *Agrotis Okakensis* Pack. = *A. Wockei* Mosch.; he describes as new *Mamestra Rogenhoferi*, and considers *Anarta bicycla* Pack.† as = *A. melaleuca* Thngb., and *A. nigrolunata* Pack. = *A. melanopa* Thngb.

* By a typographical error this species is published as *repressus*, but the larva is described on the next page under the name of *depressus*.

† Packard has previously corrected the synonymy of this and the following species; see Proceedings Amer. Assoc. Adv. Science, vol. xvi, 1868, p. 156.

P. C. ZELLER (Ent. Zeit., Stettin, 177) thinks that *Agrotis telifera* Harris is identical with the European *A. ypsilon* (suffusa).

J. A. BOISDUVAL (Ann. Soc. Ent., Belgique, 1869, 88) describes as new *Brephos Californicus* and *B. melanis* from Cal.

A. SPEYER (Ent. Zeit., Stettin, 1870, 400) describes as new *Cucullia intermedia* from New York.

PHALÆNIDÆ.

A. S. PACKARD, JR. (Proc. Bost. Soc. Nat. Hist., xiii, 381) describes as new from California, *Chærodes nubilata*, *Heterolocha Edwardsata*, *Ellopiæ Californiaria*, *Tetracis trianguliferata*, *Azelina Behrensaria*, *Metanema cervinaria*, *Boarmia Californiaria*, *Tephrosia Californiaria*, *Tephrosia ferruginosaria*, *Acidalia 5-linearia*, *Acidalia granitaria*, *Acidalia Californiaria*, *A. Pacificaria*, *A. rubromarginaria*, *Macaria Californiaria*, *Halia cineraria*, *Tephrina marmorata* (from Nevada), *Panagra flavo-fasciata*, *Selidosema Californiaria*, *Eupithecia rotundopuncta*, *E. Nevadata* (from Nevada) *Hypsipetes Californiata*, *H. 5-fasciata*, *H. nubilofasciata*, *Coremia Californiata*, *Scotosia Californiata*, *Cidaria nubilata*, *C. subochreatea*, *C. leoninata*, *C. rubro-suffusata* (from Nevada), *C. 4-punctata*, *C. multilineata*, *Chesias occidentaliata*, *Baptria Californiata*, and records besides the species enumerated by Guenée, *Azelina Hübneraria* Guen. and *Coremia propugnata* W. V.

A. S. PACKARD, JR., (Rep. Inj. Ins. Mass., 13) gives a popular account of *Abraxas ribearia* Fitch, and describes as new *Drepanodes juniperaria* (this is only a variety of *D. varius* G. and R.), with figures illustrating its transformations.

G. J. BOWLES (Can. Ent., iii, 8) notices the habits of *Abraxas ribearia* Fitch, and gives a history of the transformations of *Angerona crocotaaria* Fabr., and *Amphidasys cognataria* Gn., all of which feed on the currant.

A. R. GROTE (Can. Ent., iii, 103) describes as new *Acidalia persimilata* and *A. purpurissata* from Alabama.

W. SAUNDERS (Can. Ent., iii, 130) describes the larva of *Priocyclus armataria* H. Sch., and on p. 209, that of *Hyperetis alienaria* H. Sch.; on p. 225, that of *Stegania pustularia* Gn., and notices the habits of *Metrocampa perlata* Gn.

H. B. MÖSCHLER (Ent. Zeit. Stettin, 366) regards *Acidalia Okakaria* Pack. as = *A. frigidaria* Mösch.; *Cidaria nubilata* Pack. = *Lygris lugubrata* Mösch.; *Coremia Labradoriensis* Pack. = *C. munitata* Hübn.

J. A. BOISDUVAL (Lép. Guat.) "redescribes *Urania fulgens* Walk. as new" (Zool. Rec.). He describes as new *Coronis ocyllus* from Guatemala and Mex.

G. A. W. HERRICH-SCHÆFFER (Schm. Cuba, 1870, 185) describes as new *Chærodes exiliata*, *Drepanodes griseocostaria*, *Apicia rectisignaria*,

A. heterochloriaria, *Pero curvistrigaria*, *Azelina decisaria*, *Boarmia abjectaria*, *B. quadricostaria*, *Geometra croceofimbriata*, *G. desolataria*, *G. centrifugaria*, *G. protractaria*, *Eucrostis albicostaria*, *E. niveociliaria*, *Zonosoma* (= *Ephyra* Dup. = *Anisodis* Guén.) *nanularia*, *Z. occipitaria*, *Z. extranearia*, *Asellodes nigropasciaria*, *Acidalia chionæata*, *A. canularia*, *A. subroseata*, *A. floccularia*, *Neclusia fimbriata*, *Terpnomicta subpusaria*, *Macaria centrosignata*, *M. cellulata*, *M. trientata*, *Larentia subcertaria*, *L. decertaria*, *L. subgaleata*, *L. anguinata*, *L. aristata*, *L. artificata*, *L. baliata*, *L. balteolata* from Cuba.

PYRALIDÆ.

C. V. RILEY (Rep. Nox. Ins. Missouri, 61) describes the habits and early stages of *Desmia maculalis* Westw., with figures.

A. R. GROTE (Can. Ent., iii, 103) describes as new *Botys plumbicostalis* and *B. anticostalis* from Alabama, and gives a list of other Pyralids from the same locality (Demopolis); on p. 125 gives notes on other species, and describes *Desmia subdivisalis*, n. sp.; on p. 181, *Cataglypha Robinsonii* from Alabama.

H. B. MÖSCHLER (Ent. Zeit. Stettin, 371) regards *Scopula glacialis* Pack. as = *S. inquinialis* Zell., and *Eudorea? frigidella* Pack. as = *E. centuriella* S. V.

P. C. ZELLER (Ent. Zeit. Stettin, 177) regards *Pempelia grossulariæ* Pack. as = *Myelois convolutella* Hübn., an European species.

TORTRICIDÆ.

C. V. RILEY (Rep. Nox. Ins. Missouri, 101) adds to our knowledge of the habits of *Carpocapsa pomonella* Linn.

W. LEBARON (Rep. Ins. Ill., 20) describes as new *Tortrix malivoreana*, and gives an account of its habits.

W. SAUNDERS (Can. Ent., iii, 13) notices and figures *Grapholitha oculana* Harr.; on p. 26 *Carpocapsa pomonella* (Linn.)

H. B. MÖSCHLER (Ent. Zeit. Stettin, 373) considers *Sciaphila niveosana* Pack. as a synonyme of *S. osseana* Scop., and *Conchylis chalcana* Pack. as = *C. Deutschiana* Zett. He records *Penthina turfosa* H.-Sch. as a Labrador species.

P. C. ZELLER (Ent. Zeit., Stettin, 117) regards *Penthina vitivorana* Pack. = *Eudemis botrana* S. V., and *Anchylopera fragariæ* Walsh = *A. comptana* Froel. of Europe.

TINEIDÆ.

A. S. PACKARD, JR. (Rep. Inj. Ins. Mass., 24) describes as new *Buculatrix thuiella*, with figures.

V. T. CHAMBERS (Can. Ent., iii, 23) describes as new *Cemiostoma*

albella, with an account of its habits. On p. 54 he describes the habits of the species of *Lithocolletis*, and describes as new *L. tiliaciella*, *L. Clemensella*, and *L. caryæ-albella*; on p. 84 *L. virginiella*; on p. 108, *L. nonfasciella*, *L. Bethunella*, *L. tri-tæniella*, *L. corylisella*; on p. 127, *L. ambrosiella*, *L. celtifoliella*, *L. celtisella*; on p. 146, *L. Cincinnatiella*, *L. ulmella*; on p. 161 *L?* *ornatella*; on p. 182 he gives notes on various species; on p. 205 *Leucanthiza?* *Saundersella*, *Phyllocnistis viti-foliella*, *P. ampelopsiella*, with notes on the species of *Tischeria*; on p. 221 *Laverna cephalonhiella*, with notes on *Aspidisca* and *A. Ella*, n. sp.

H. B. MÖSCHLER (Ent. Zeit. Stettin, 375) considers *Gelechia trimaculella* Pack. as = *G. continuella* Zell.

PTEROPHORIDÆ.

C. V. RILEY (Rep. Nox. Ins. Missouri, 65) gives an account of the transformations of *Pterophorus periscelidactylus* Fitch, with figures.

P. C. ZELLER (Ent. Zeit. Stettin, 179) refers *Pterophorus carduidactylus* Riley to the genus *Platyptilus*.

DIPTERA.

As usual, very little has been written during the year 1871 concerning American insects of this much neglected, and yet most interesting group.

G. J. BOWLES (Can. Ent., iii, p. 218) states that a dipterous insect, probably *Trypeta Canadensis* Loew, has been found to injure the fruit of the red and white currant in Canada.

A. S. PACKARD, Jr. (Amer. Nat., v, p. 744) records the capture of a species of *Anthomyia* and of *Phora* in the Mammoth Cave of Kentucky, and figures the former.

A. S. PACKARD, Jr. (Amer. Nat., iv, p. 690) describes abdominal sense organs in *Chrysopila*.

A. S. PACKARD, Jr. (Amer. Jour. of Science and Arts, 3d Series, i, p. 100). On Insects inhabiting Salt-water. Descriptions of some species of dipterous insects inhabiting salt-water are given.

FRANCIS WALKER (Can. Ent., iii, p. 141) begins a list of the Diptera of Nova Scotia. No new species are described.

H. LOEW* (Ent. Zeitung, Berlin, 1869) 8te und 9te Centurie von Beschreibungen nordamerikanischer Dipteren.

C. G. THOMPSON (Eugenies Resa, 1869) describes several species from California.

MYCETOPHILIDÆ.

H. LOEW (Ent. Zeit., Berlin, 1869) describes as new *Ditomyia euzona*, *Plesiastina tristis*, *P. lauta*, *Asyndulum coxale*, *Macrocera hirsuta*, *M. clara*, *M. inconcinna*, *Platyura divaricata*, *P. diluta*, *P. mendica*, *P. mendosa*, *P. melasoma*, *Empheria balioptera*, *E. didyma*, *E. nepticula*, *Polylepta fragilis*, *Sciophila onusta*, *S. obtruncata*, *S. appendiculata*, *S. biseriata*, *S. tantilla*, *Lasiosoma quadratula*, *Eudicrana*, (n. gen. allied to *Platyura*) *obumbrata*, *Syntemna polyzona*, *Boletina trincincta*, *Phthinia tanypus*, *Elaphyoptera melæna*, *G. decora*, *G. opima*, *G. sublunata*, *G. oblectabilis*, *Leja sororcula*, *L. abbreviata*, *Acnemia psylla*, *Docosia dichroa*, *Rymnosia filipes*, *Trichonta vulgaris*, *T. fœda*, *Zygomysia ignobilis*, *Z. ornata*, *Epicyptha pulicaria*, *Mycothera paula*, *Mycetophila*, 13 species, *Sciara sciophila*, *S. ochrolabis*, *Trichosia hebes* from N. America.

VAN DER WULP (Tijdschr. Ent. 1869) describes as new *Glaphyoptera lateralis*, Wisconsin.

BIBIONIDÆ.

H. LOEW (Ent. Zeit., Berlin, 1869) describes as new *Dilopus breviceps*, from N. H.; *D. obesulus*, District of Columbia; *D. tibialis*, Sitka; *O. dimidiatus*, N. York.

V. DER WULP (Tijdsch. Ent., 1869) describes as new *Bibio senilis*, from Wisconsin.

CHIRONOMIDÆ.

A. S. PACKARD, Jr. (Amer. Jour. of Sci. and Arts, i, p. 100) figures and describes the larva and pupa of a species of *Tanypus* from Clear Lake, Lake Co., Cal. It is also stated that Prof. A. E. Verrill dredged a living larva of *Chironomus oceanicus* Pack. from a depth of twenty fathoms.

VAN DER WULP (Tijdschr. Ent., 1869) describes as new *Tanypus futilis*, from Wisconsin.

CULICIDÆ.

VAN DER WULP, (Tijdschr. Ent. 1869) describes as new *Culex testaceus*, from Wisconsin.

C. G. THOMPSON (Eugenies Resa, 1869) describes as new *Culex incidens*, from California.

* All the citations of species of Diptera described during 1869 and 1870 are taken from Brauer's "Berichte" and the Zoological Record, as the works themselves have not been received.

TIPULIDÆ.

H. LOEW (Ent. Zeit., Berlin, 1869) describes as new *Longurio* (n. gen.) *testaceus* and *Dixa clavata*, from Mass.

STRATIOMYIDÆ.

A. S. PACKARD, Jr. (op. cit., p. 102) describes and figures the larva and pupa of a species of *Stratiomys* from Clear Lake, Cal.

H. LOEW (Ent. Zeit., Berlin, 1869) describes as new *Nothomyia* (n. gen.) *calopus*, *N. scutellata*, Cuba; *Nemotelus carbonarius*, Mass.

VAN DER WULP (Tijdschr. Ent., 1869) describes as new *Oxycera picta* and *Sargus marginatus*, Wisconsin.

XYLOPHAGIDÆ.

H. LOEW (Ent. Zeit., Berlin, 1869) describes as new *Xylophagus longicornis*, *X. rufipes* and *X. abdominalis*, from N. America.

VAN DER WULP (Tijdschr. Ent., 1869) describes as new *Subula tenthredinoides*, Wisconsin.

TABANIDÆ.

H. LOEW (Ent. Zeit., Berlin, 1869) describes as new *Phiolina fasciata*, *P. majuscula*, *Pangonia rasa*, and *Lepidoselaga*, (*Lepiselaga*) *recta*, from N. America.

VAN DER WULP (Tijdschr. Ent., 1869) describes as new *Chrysops æstuans*, from Wisconsin.

ACROCERIDÆ.

H. LOEW (Ent. Zeit., Berlin, 1869) describes as new *Oncodes costatus* and *Opsebius sulphuripes*, from N. America.

BOMBYLIDÆ.

C. G. THOMPSON (Eugenies Resa, 1869) describes as new *Anthrax nudiuscula*, and *A. 5-punctata* from Panama.

H. LOEW (Ent. Zeit., Stett., 1869) describes as new *Geron macrop-terus*, *G. vitripennis* and *G. albidipennis*, *Anthrax proboscidea*, Sonora, *A. pertusa*, New Mexico, *A. flaviceps*, Tamaulipas, *A. ceyx*, Virginia; *A. fuliginosa*, *A. diagonalis*, *A. molitor*, *A. curta*, California; *A. palliata*, *A. parvicornis*, *A. scrobiculata*, *A. stenozona*, Illinois, *A. sagata*, Matamoras, *A. bigradata*, *A. adusta*, Cuba, *A. nigricauda*, Mass., *A. mucorea*, Nebraska, *Exoprosopa gazophylax*, *E. bifurca*, *E. Agassizii*, California, *E. decora*, Wisconsin, *E. trabalis*, Jalapa, *E. sordida*, Matamoras, *E. Cubana*, *E. nubifera*, *E. parva*, Cuba, *Hemipenthes seminigra*, Saskatchewan, *Argyromæba delila*, California, *A. stellans*, Oregon, *A. obsoleta*, Missouri, *A. pauper*, Illinois, *A. euplanes*, Cuba, *A. contigua*, Virginia, *Ploas limbata*, New Mexico.

VAN DER WULP (Tijdschr. Ent., 1869) describes as new *Mulio Americanus*, Wisconsin.

SCENOPINIDÆ.

H. LOEW (Ent. Zeit., Berlin, 1869) describes as new *Scenopinus albidipennis*, from Cuba.

ASILIDÆ.

V. DER WULP (Tijdsch Ent., 1869) describes as new *Machimus avidus* and *Stilpnogaster anceps*, *Leptogaster flavicornis*, *Dasygogon laticeps*, Wisconsin. The same (1870) *Stenopogon ochraceus*, N. Amer.

THEREVIDÆ.

H. LOEW (Ent. Zeit., Berlin, 1869) describes as new *Thereva comata*, *Psilocephala longipes*, *P. melampodia*, *P. munda*, *P. laticornis*, *P. melanoprocta*, *P. costalis*, *P. rufiventris*, *Psilocephala variegata*, *P. scutellaris*, *P. erythrura*, *Thereva albiceps*, *T. flavicincta*, *T. gilvipes*, *T. strigipes*, United States.

LEPTIDÆ.

VAN DER WULP (Tijdschr. Ent., 1869) describes as new *Leptis gris-eola* and *Chrysopila dispar* from Wisconsin.

H. LOEW (Ent. Zeit., Berlin, 1869) describes as new *Ptiolina fasciata* and *P. majuscula*, Hudson's Bay.

EMPIDÆ.

H. LOEW (Ent. Zeit., Berlin, 1869) describes as new *Empis distans*, Georgia; *E. violacea*, *E. suavis*, Mexico; *E. superba*, Cuba.

VAN DER WULP (Ent. Zeit., Berlin, 1869) describes as new *Syneches punctipennis*, Wisconsin.

DOLICHOPIDÆ.

H. LOEW (Ent. Zeit., Berlin, 1869) describes as new *Asyndetus ammophilus*, *A. appendiculatus*, *Hydrophorus æstum*, *Saucropus carbonifer*, from N. America.

C. G. THOMPSON (Eugenies Resa, 1869) describes as new *Medeterus breviseta*, *Dolichopus lamellicornis*, *D. canaliculatus*, *D. metatarsalis* and *D. aurifer*, from California.

CONOPIDÆ.

C. G. THOMPSON (Eugenies Resa, 1868) describes as new *Myopa conjuncta*, California.

MUSCIDÆ.

C. V. RILEY (Third Rep. on Insects of Illinois, p. 150) describes *Tachina (Masicera) archippirora* n. sp., parasitic on *Danais Archippus*.

C. V. RILEY (op. cit., p. 129) states that he has bred *Exorista leu-*

cania Kirkpatrick, from *Attacus Cecropia*, *Datana ministra*, *Agrotis inermis* and two other species of Agrotidians.

HENRY SHIMER (Amer. Nat., v, p. 217) describes *Tachina* (*Melanophora*) *diabroticæ* n. sp., parasitic on *Diabrotica vittata* Fabr., the "Striped cucumber beetle."

VAN DER WULP (Tijdschr. Ent., 1869) describes as new *Echinomyia hæmorrhœa*, *Schineria ruficauda*, *Baumhauria analis*, *Dexia triangularis*, *Aricia cinerella*, *A. proxima*, *Cænusia incisurata*, *Anthomyia tarsata*, *Cordylura maculipennis*, *Sapromyza plumata*, *Herina metallica*, *H. ruficeps*, *Trypeta* (*Aciura*) *ænea*, *T.* (*Tephritis*) *cribrata*, *Piophila nitida*, *Agromyza jucunda*, from Wisconsin.

H. LOEW (Ent. Zeit., Berlin, 1869) describes as new *Hydrophorus æstum*, Rhode Island, *Gymnochæta alcedo*, Mass., *Pyrellia centralis*, Cuba, *P. setosa*, Illinois, *Cænusia tricincta*, *Schænomyza chrysostoma*, *Cordylura gracilipes*, *C. inermis*, *C. glabra*, *C. albibarba*, New Hampshire, *C. scapularis*, English River, *C. munda*, Hudson's Bay Territory, *C. latifrons*, Middle States, *C. gagatina*, Canada, *C. acuticornis*, Hudson's Bay Territory, *C. megacephala*, District Columbia, *Loxocera pectoralis*, Washington, *L. pleuritica*, Conn., New York, *Psila lateralis*, Washington, *P. bivittata*, *P. collaris*, Conn., *P. dimidiata*, Red River, *P. sternalis*, Middle States, *P. levis*, New Hampshire, *Loxocera collaris*, District Columbia, *L. fallax*, Canada, *Chyliza notata*, District Columbia, *Mycetaulus longipennis*, *Oscinis carbonaria*, [District of ?] Columbia, *O. dorsalis*, Rhode Island, *Siphonella reticulata*, Cuba, *Elliponeura debilis*, [District of ?] Columbia, *Rhinoessa albula*, *R. parvula*, Rhode Island, *Lobioptera indecora*, Nebraska, *L. leucogastra*, Cuba, *Cacoxenus semiluteus*, Cuba, *Trigonometopus vittatus*, Georgia, *Phytomyza nemosa*, *P. genualis*, District Columbia, *Leucopis simplex*, New York, *Phyllomyza nitens*, Penn., *Agromyza setosa*, District Columbia, *A. simplex*, Middle States, *A. virens*, Penn., *A. magnicornis*, *A. angulata*, Penn., *A. melampyga*, Dist. of Columbia, *A. coronata*, Cuba, Penn., *A. longipennis*, *A. marginata*, [Dist. of?] Columbia, *A. parvicornis*, Washington, *A. neptis*, [Dist. of?] Columbia, *Hydrellia conformis*, *Scatella mesogramma*, Rhode Island, *Callomyia talpula*, New Hampshire, *C. tenera*, New York.

A. S. PACKARD, Jr. (Amer. Jour. Science and Arts, p. 103) describes and figures the larva and pupa of *Ephydra Californica* n. sp., from Clear and Mono Lakes, Cal.; and (p. 105) describes the pupæ of *E. gracilis* n. sp., from Great Salt Lake. The imagos of these species are unknown.

C. G. THOMPSON (Eugenies Resa, 1868) describes as new *Lophosia setigera*, *Echinomyia filipalpis*, *Jurinea echinata*, *Miltogramma erythroceræ*, California, *M. biseta*, Panama, *Sarcophaga pallinervis*, Honolulu, California, *Lucilia picicrus*, Panama, *L. stigmaticalis*, *Pyrellia fron-*

talis, *Cyrtoneura 4-setosa*, *C. recurva*, *Anthomyia micropteryx*, *A. ochripes*, *A. ochrogaster*, *Ochtiphila lispina*, *Agromyza pictella*, *A. platyptera*, California, *Ortalis platystoma*, Panama, *Lauxania nasalis*, *planiscuta*, *quadrisetosa*, *Trypeta acutangula*, *T. aurifera*, *T. genalis*, *T. femoralis*, *T. liogaster*, *Sepsis ecalcarata*, *Piophila concolor*, *Hippelates genalis*, *Ephydra pentastigma*, *Notiphila quadrisetosa*, *Drosophila apicata*, *Helomyza limbata*, *Scatophaga thinobia*, California, *Olfersia sulcifrons*, Panama.

SYRPHIDÆ.

VAN DER WULP (Tijdschr. Ent., 1869) describes as new *Syrphus signatus* from Wisconsin.

H. LOEW (Ent. Zeit., Berlin, 1869) describes as new *Myiolepta varipes*, Virginia, *Orthoneura ustulata*, New Jersey, *Temnocera purpurascens*, Hayti.

C. G. THOMPSON (Eugenies Resa, 1870) describes as new *Syrphus fumipennis*, *S. infumatus*, *S. limbiventris*, *S. sulphuripes*, *S. trichopus*, *Eristalis temporalis*, California.

COLEOPTERA.

Much progress has been made during the year 1871 in the study of that branch of the science especially devoted to the investigation of the habits of Coleoptera and to the dissemination of the knowledge thereby obtained among those to whom such information is of great practical value. The Legislatures of several States have by liberal appropriations greatly aided this advance in knowledge and have seen the wisdom of the course in the good results produced. The results of the observations made have been published in special reports by the States of Massachusetts, Illinois and Missouri under the editorship of A. S. Packard, Jr., M. D., Wm. LeBaron, M. D. and Chas. V. Riley, in the order of the States named.

First Annual Report on the Injurious and Beneficial Insects of Massachusetts, by A. S. Packard, Jr., M. D.

In this pamphlet Dr. Packard notices the habits of *Liopus facetus* Say (injurious to apple trees) and *L. xanthoxyli* Shimer (prickly ash borer) and figures the larva of the latter. *Calli-*

diurnum amœnum Say is noticed and a figure of the larva given (injures the grape). A figure is given also of the head of *Telephorus bilineatus* (larva) with some notice of its habits, and also the larva of *Galerita janus*.

Third Annual Report on the Noxious, Beneficial and other Insects of the State of Missouri by Charles V. Riley.

This report is the most voluminous of the State reports during the year, and it is to be regretted that Mr. Riley in his very laudable desire of rendering his report popular has been led into error by some of his very sweeping generalizations. On pp. 9 and 10 Mr. Riley says, "it (the family Curculionidæ) is at once distinguished from all the other families of beetles, by the front of the head being produced into a more or less elongated snout or rostrum at the extremity of which the mouth is situated." The snout is by no means characteristic of, nor peculiar to, the family or rather section *Rhynchophora*, as may be seen among many *Scolytidæ* with no snout, while among some *Ædemeridæ* (*Rhinoplatia* Horn), *Mycteridæ* (*Mycterus*) and *Pythidæ* (group *Salpingini*) a very distinct and quite elongated snout exists. Even in a popular publication accuracy should never bend to popularity.

Page 11. *Conotrachelus nenuphar* Hbst., figures of larva, pupa and imago, with remarks on their habits. Plum trees.

Page 29. *Anthonomus quadrigibbus* Say, notes as above.

Page 35. *Conotrachelus crataegi* Walsh, figure of imago. Quince.

Page 39. *Anthonomus prunicida* Walsh, figure of imago. Plum.

Page 42. *Analcis fragariæ* Walsh, imago and larva. Strawberry.

Page 45-52. Remarks on *Bruchus pisi* Linn. and *granarius* Linn., both imported species.

Page 52. *Bruchus fabæ* Riley, figure of imago. Bean.

Page 57. *Ithycerus curculionoides* Hbst., figure of larva and pupa, erroneously named in this *Noveboracensis*, the latter name being accepted as a synonyme. Injures usually stone fruit.

Page 58. *Epicærus imbricatus* Say, figure of imago. Apple, cherry, etc.

Page 59. *Sphenophorus zeæ* Walsh., figure of imago. Injures maize.

Page 60. *Sphen. pulchellus* Schon., figure of imago.

Page 77. *Pelidnota punctata* Linn., figured in various stages.

Page 79. *Haltica chalybea* Illig., figured in all its stages. Grape vine.

Page 81. *Colaspis flavida* Say, figure of imago. Grape.

The remarks on the habits of the above mentioned Coleoptera in their various stages of development are full, clear and to the point. It is to be hoped that the tendency shown among practical entomologists, of borrowing each other's woodcuts and entire articles may be checked. The remark is not intended to be applied to the present pamphlet, as it is rather the "sinned against" than "sinning."

First Annual Report on the Noxious Insects of the State of Illinois, by Wm. LeBaron, M. D.

Page 63. *Doryphora decemlineata* Say. This article is illustrated by a very familiar woodcut. A list of insects is given known or supposed to be detrimental to the increase of the *Doryphora*, two of which are doubtful, viz.: *Lytta vittata* and *cinerea*, which, however, are properly *Epicauta*, and are probably not at all predaceous, but are on the contrary occupied in a manner similar to the *Doryphora* itself. (See *Canad. Ent.*, iii, p. 138.)

Monthly Report of the Department of Agriculture. Entomological Record. By Townend Glover.

Canadian Entomologist. Edited by Rev. C. J. S. Bethune, M. A. Continuations of the reprint of Kirby's *Fauna Boreali Americana*, by the editor in Nos. ii, v, vi, vii, viii, ix, x, xi, xii.

Pages 41-51. Report of Messrs. W. Saunders and E. B. Reed on the Colorado Potato Beetle.

Page 105. List of Coleoptera, taken at Grimsby by J. Pettit, enumerating over one hundred Cerambycidæ, without, however, completing the list.

Synonymical Notes on North-American Coleoptera, by John L. LeConte, M. D., Philadelphia. In the Annals and Magazine of Nat. Hist., London, Nov. 1870. Not properly an American publication, but included in the Record as part of the progress of Entomology in the United States, from the subject and author. It contains

I. Review of the types of Kirby (Fauna Boreali-Americana).

II. " " " " " Newman.

III. " " " " " Walker (Nat. in Brit. Col., London, 1866).

IV. Review of types in Parisian collections.

Many points of synonymy long in doubt have here been settled and it is hoped finally.

Transactions of the American Entomological Society, Vol. ii, Philadelphia, 1871.

The following papers on Coleoptera are published :

Synopsis of the species of *Corphyra* Say, of the United States, by Geo. H. Horn, M. D.

Synopsis of Aphodiini of the United States, by Geo. H. Horn, M. D.

Remarks on the species of the Genus *Isomalus* of the United States by Geo. H. Horn, M. D.

Descriptions of new species of Elateridæ of the United States by Geo. H. Horn, M. D.

Descriptions of new Coleoptera of the United States, with notes on known species, by Geo. H. Horn, M. D.

Synonymy noticed in the papers cited. Synonymes in italics.

1st. From Kirby's types (Fauna Boreali-Americana), British Museum. By Dr. LeConte.

Cicindela obliquata Kby = *vulgaris* Say; *Elaphrus Clairvillei* Kby = *politus* Lec.; *Elaphrus intermedius* Kby = *Californicus* Mann.; *Anchomenus angusticollis* Kby = *Platynus stygicus* Lec.; *Agonum seminitidum* Kby = *cupreum* Dej. = *chalceum* Lec.; *Argutor bicolor* Kby = *Pterostichus patruelis* Dej.; *Amara discors* Kby = *gibba* Lec.; *Chlænius quadricollis* Kby = *brevilabris* Lec.; *Chlænius impunctifrons* Kby = *Pennsylvanicus* Say; *Chlænius cordicollis* Kby = *chlorophanus* Auct.; *Chlænius chlorophanus* Dej. = *solitarius* Say; *Harpalus laticollis* Kby = *Anisodactylus Harrisii* Lec.; *Harpalus basilaris* Kby = *obesulus* Lec.; *Peryphus sordidus* Kby = *bimaculatus* Kby; *Laccophilus biguttatus*

Kby = *proximus* Say = *Americanus* Aubé; *Necrophorus obscurus* Kby = *Melsheimeri* Lec; *Necrophorus Melsheimeri* Kby = *Sayi* Lap. = *lunatus* Lec; *Necrophorus pygmæus* Kby = ? *defodiens* Mann.; *Cryptophagus concolor* Kby = *Triphyllus ruficornis* Lec.; = *humeralis* Kby; *Byrrhus concolor* Kby = *Cytilus*; *Byrrhus picipes* Kby = *geminatus* Lec.; *Telephorus mandibularis* Kby = *fraxini* Say; *Leptura longiceps* Kby = *Acmæops strigillata* (Fab.); *Leptura longicornis* Kby = *Acmæops marginalis* Lec.

2d. From types of Newman, British Museum.

Feronia mœrens Nm. = *Pterostichus flebilis* Lec. = *adjunctus* Lec.; *Feronia picipes* Nm. = *Pterostichus stygicus* (Say); *Feronia atrata* Nm. = *Pterostichus permundus* Say; *Feronia orbata* Nm. = *Evarthrus conviva* Lec.

3d. Types of Mr. Walker ("Naturalist in British Columbia," Lord, 1866, Vol. ii, appendix), British Museum.

Calosoma irregulare W. = *tepidum* Lec.; *Callisthenes pemelioides* W. = *Calosoma Zimmermanni* var. = *luxatum* Say; *Carabus bicolor* W. = *Calosoma laqueatum* Lec.; *Amaseus colligatus* W. = *Pterost. Oregonus* Lec.; *Amara extensa* W. = *Harpalus* sp.? *Amara communis* W. = *impuncticollis* Say; *Peryphus æqualis* W. = *Bembid. planatum* Lec.; *Laccophilus maculosus* W. = *decepiens* Lec.; *Atemeles reflexus* W. = *cavus* Lec.; *Tropisternus binotatus* W. = *Hydrophilus limbatus* Lec.; *Saprinus consimilis* W. = *Oregonensis* Lec.; *Necrophorus conversator* W. = *pollinator* Lec.; *Cremastochilus armatus* W. = *angularis* Lec.; *Anomala contermina* W. = *Lachnosterna tristis* ? Kn.; *Rhizotrogus collocatus* W. = *Phobetus testaceus* Lec.; *Ancylonycha nigropicea* W. = *Diplotaxis brevicollis* Lec.; *Ancylonycha consequens* W. = *Diplotaxis* sp.? *Ancylonycha uninotata* W. = *Lachnosterna* sp.? *Serica crassata* W. = *anthracina* Lec.; *Ancylochira ornata* W. = *Langii* Mann.; *Adelocera vetusta* W. = *profusa* Cand. = *cavicornis* Lec.; *Athous quadrivittatus* W. = *Corymbites lateralis* Lec. (immature); *Diacanthus semimetallicus* W. = *Corymb. æripennis* Kby; *Clerus sobrius* W. = *sphegeus* Fab.; *Ipthemus servilis, servator, subligatus* W. = *races of serratus* Mann.; *Eleodes convexicollis* and *conjuncta* W. = *obscura* Say; *Eleodes binotata* W. = *hispilabris* Say; *Eleodes latiuscula* W. = *probably humeralis* Lec.; *Helops inclusus* W. = *either lautus or pernicens* Lec; *Nemognatha bicolor* W. = *apicalis* Lec.; *Eutrypanus princeps* W. = *Ædilis spectabilis* Lec.; *Typocerus cervinus* W. = *Toxotus spurcus* Lec.; *Toxotus perductor* W. = *Leptura oblitterata* Hald.; *Clythra bisignata* W. = *Saxinis saucia* Lec.

4th. Types in the collections in Paris.

Amblychila Piccolomini Reiche = *cylindriformis* Say; *Cicindela blanda* Dej. = *tarsalis* Lec.; *Omophron nitens* Chaud. = *nitens* Lec. *Cychnus Germari* Chaud. = *Andrewsii* Harris; *Cychnus granulatus*

Chaud. = *Lecontei* Dej. var. *Brevoorti* Lec.; *Cychnus Schaumii* Chaud. = *nitidicollis* Chev.; *Pasimachus viridans* Lec. = *Mexicanus* Gray; *Anisotarsus* Chaud. = *Eurytrichus* Lec.; *Dacnochilus latus* Lec. = *angularis* Er.; *Lispinus rufescens* Lec. = *Ancæus*.

New synonymy in Elateridæ, etc. By Dr. Horn.

Limonius discicollis Cand. = *maculicollis* Motsch. Trans. Amer. Ent. Soc., p. 316. *Limonius humeralis* Cand. = *ornatulus* Lec. Trans. Amer. Ent. Soc., p. 316. *Corymbites Nebraskensis* Bld. = *triundulatus* Rand. Trans. Amer. Ent. Soc., p. 322. *Corymbites diversicolor* Esch. = *rotundicollis* Say. Trans. Amer. Ent. Soc., p. 323. *Corymbites lateralis* Lec. = var. *carbo* Lec. Trans. Amer. Ent. Soc., p. 323. *Cyclocephala robusta* Lec. = *nigricollis* Burm. Trans. Amer. Ent. Soc., p. 334. *Anelpistus Americanus* Horn = *Scotodes Americanus*, l. c., p. 343.

The following list comprises the new genera and species:—

CICINDELIDÆ.

GEO. H. HORN. (Trans. Amer. Ent. Soc.) *Cicindela puritana*, p. 325, N. Hamp. and Mass.

CARABIDÆ.

GEO. H. HORN. (Trans. Amer. Ent. Soc.) *Chlænius viduus*, p. 325, Missouri; *C. orbis*, p. 326, Texas; *C. alternatus*, p. 327, Saskatchewan. *Anophthalmus tenuis* and *eremita*, pp. 327 and 328, Wyandotte Cave, Indiana.

DYTISCIDÆ.

GEO. H. HORN. (Trans. Amer. Ent. Soc.) *Suphis lineatus*, p. 329, Lower Cal.; *Laccophilus quadrilineatus*, p. 330, Texas; *Colymbetes inæqualis*, p. 330, Cal. and Oregon. *Laccophilus pictus* Cast., Texas, and *Colymbetes coriaceus* Cast., Canada, are noticed for the first time in our fauna, p. 330.

HYDROPHILIDÆ.

GEO. H. HORN. (Trans. Amer. Ent. Soc.) *Hydrophilus quadristriatus*, p. 331, New Jersey.

STAPHYLINIDÆ.

GEO. H. HORN. (Trans. Amer. Ent. Soc.) *Phytosus littoralis*, p. 331, New Jersey; *Quedius spelæus*, p. 332, Wyandotte Cave, Indiana; *Eleusis (Isomalus) Canadensis*, p. 299, Canada; *Glyptoma brevicristatum*, p. 332, Arizona. *Pseudopsis sulcatus* Nm., Canada, is noticed in our fauna, previously known only from England, p. 333.

HISTERIDÆ.

GEO. H. HORN. (Trans. Amer. Ent. Soc.) *Saprinus æneipunctatus*, p. 333, California coast.

SCARABÆIDÆ.

GEO. H. HORN. (Trans. Amer. Ent. Soc.) *Bradycinetus* n. g., in place of *Amechanus*, p. 334; *Aphodius ochreipennis* and *rugifrons*, p. 295, California; *Oxyomus opacifrons*, p. 284, Middle States; *Atænius robustus*, p. 285, Missouri; *oblongus*, p. 286, California; *ovatulus*, p. 286, Penn. to Louisiana; *lobatus*, p. 287, Lower California; *socialis*, p. 288, Georgia; *hirsutus*, p. 288, Ariz.; *lucanus*, p. 288, Lower Cal.; *cylindrus*, p. 289, Gulf States; *desertus*, p. 289, Colorado Desert; *Rhyssemus Californicus*, p. 290, Cal.; *riparius*, p. 290, Ariz.; *Psammодиус quinqueplicatus*, p. 292, Ariz.; *bidens*, p. 293, Georgia; *Ægialia conferta*, p. 294, Middle and South. States; *Cyclocephala elegans*, p. 337, Texas and Lower Cal.; *Cotalpa consobrina*, p. 337, Ariz.; *Osmoderma socialis*, p. 338, Ariz.; *Cremastochilus depressus*, p. 340, *pilosicollis*, p. 341, Cal.

ELATERIDÆ.

GEO. H. HORN. (Trans. Amer. Ent. Soc.) *Meristhus cristatus*, p. 299, Lower Cal.; *Texanus*, p. 300, Texas; *Cardiophorus togatus*, p. 301, Texas; *Edwardsi*, p. 301, Cal.; *æneus*, p. 301, Cal.; *Horistonotus definitus*, p. 302, Cal.; *Uhleri*, p. 302, Florida; *Coptostethus Americanus*, p. 303, Louisiana; *Cryptohypnus Sanborni*, p. 303, New Hampshire; *æstivus*, p. 304, Missouri; *perplexus*, p. 304, D. C.; *dubius*, p. 305, Dacota; *colon*, p. 305, Cal.; *Elater atripennis*, p. 306, Cal.; *Behrensi*, p. 306, Cal.; *cordatus*, p. 306, Cal.; *Elatrinus* (n. g.) *anthrax*, p. 307, Cal.; *Drasterius grandicollis*, p. 308, Cal.; *marginicollis*, p. 308, Cal.; *Megapenthes aterrimus*, p. 309, Cal. and New Mexico; *elegans*, p. 310, Cal.; *Rogersi*, p. 310, Canada; *Anchastus desertus*, p. 311, Colorado Desert; *sericeus*, p. 311, Ariz.; *Monocrepidius robustus*, p. 312, Ariz.; *mutuus*, p. 312, Ariz.; *Ludius Lecontei*, p. 313, Cal.; *Limonius quadrimaculatus*, p. 313, Cal.; *Ulkei*, p. 314, Cal.; *cribricollis*, p. 314, Cal.; *nitidulus*, p. 315, Cal.; *Athous axillaris*, p. 316, Cal.; *flavangularis*, p. 317, Vermont; *Agriotes protractus*, p. 317, Cal.; *Oxygonus ater*, p. 318, Cal.; *Corymbites xanthomus*, p. 319, Cal.; *monticola*, p. 319, Cal.; *limoniiformis*, p. 320, Dacota; *pruininus*, p. 320, Cal. and Nev.; *Breweri*, p. 321, Cal.; *præses*, p. 321, Montana; *obversus*, p. 322, Cal.

CLERIDÆ.

GEO. H. HORN. (Trans. Amer. Ent. Soc.) *Clerus repandus*, p. 342, Cal. to Iowa; *Hydnocera albocincta*, p. 342, Texas.

OTHNIIDÆ.

GEO. H. HORN. (Trans. Amer. Ent. Soc.) *Elacatis longicornis*, p. 334, Fort Yuma, Cal.

EUCNEMIDÆ.

GEO. H. HORN. (Trans. Amer. Ent. Soc.) *Xylobius cylindriformis*, p. 341, California.

ANTHICIDÆ.

GEO. H. HORN. (Trans. Amer. Ent. Soc.) *Corphyra vittata*, p. 279, Cal.; *funebri*, p. 280, Cal.; *Lewisii*, p. 281, Colorado.

EROTYLIDÆ.

GEO. H. HORN. (Trans. Amer. Ent. Soc.) *Triplax aulica*, p. 343, Missouri.

BRUCHIDÆ.

CHAS. V. RILEY. (Third Annual Report, Missouri) *Bruchus fabæ*, p. 55, U. S.

RHYNCHOPHORA.

CHAS. V. RILEY. (Third Annual Report, Missouri) *Analcis fragariæ*, p. 44, Missouri and Illinois; *Sphenophorus zeæ* Walsh, p. 59, Mo. and Ill.

CERAMBYCIDÆ.

T. GLOVER (Month. Rpt. Dep. Agric., 477) notices (with a figure) the habits of *Oncideres cingulatus* Say, and *Elaphidion villosum* (Fabr.)

T. GLOVER (Month. Rpt. Dep. Agric., 479) gives an account of the habits of *Anthonomus signatus* Say.

HEMIPTERA.

DR. ASA FITCH (13th Report on the Insects of the State of New York, Agricult. Society for 1869), details the habits of *Phytocoris lineatus* Fab., recounts the different plants infested by various *Aphids*, and describes an apparently new species, *A. circeandis*.

TOWNEND GLOVER (Monthly Report of the Department of Agriculture; October, 1871), records some of the habits and characteristics of *Erythroneura vitis* Harris, and of another species (name not given), and states the remedies employed to check their depredations.

E. B. REED (Canadian Entomologist, p. 170), notes *Perillus circumcinctus* Staal, as one of the destroyers of the Colorado

potato beetle; and with Mr. W. Saunders, l. c. p. 49, reports *Sinea raptatoria* Say to be an enemy of that beetle in its larval state.

DR. W. LEBARON (First Annual Report on the Noxious Insects of Illinois, 1871), notes the habits of *Phytocoris quad-rivittatus* Say (it is the *Capsus lineatus* Fab.), and gives an interestingly detailed account of *Mytilaspis conchiformis* Gmelin, and of *Mytilaspis pinifoliae* Fitch.

C. V. RILEY (Third Annual Report on the Insects of Missouri, 1871), notices the carnivorous propensities of *Campyloneura vitripennis* Say, and gives woodcuts of the adult and young. He also notes the sawing and rasping of apple tree limbs by the Cicadas, *C. septendecim* and *C. tredecim*, and by trechoppers and other Homoptera; and furnishes a valuable account, with figures, of the pernicious pest of the grapevines, *Phylloxera vitifoliae* Fitch, which he shows to be almost, if not quite, identical with *P. vastatrix* Planchon, the species so destructive to the vines in France.

DR. CARL STAAL (Hemiptera Fabriciana, 1868, received too late for notice in our former report), has critically investigated the still extant types of the Fabrician descriptions, and has given careful and ample diagnoses of the insufficiently described forms; thus making recognizable many species which could not formerly be determined.

P. R. UHLER (Proceedings Boston Society Natural History, Feb., 1871), describes and notices several species belonging to the collection of Dr. T. W. Harris; and in Dr. Packard's paper "On Insects Inhabiting Salt Water" (Amer. Jour. Sci. and Arts, Third Series, Vol. I), describes two new species of aquatic Heteroptera, and notices the habits of a marsh-frequenting *Salda*. He also gives a list of Colorado species in Dr. Hayden's Report on the Territories, 1871.

FRANCIS WALKER (Catalogue of Heteropterous Hemiptera in the British Museum, Pts. I, II, IV, 1867-'71), gives a list of the species belonging to the collection of the British Museum, and describes several apparently new species from North America.

(H E T E R O P T E R A .)

SCUTELLERIDÆ.

C. STAAL (Hemipt. Fabr., pp. 13-14, cites *Tetyra arcuata* Fab., *Diolcus irroratus* Fab., and *Symphylus affinis* Fab. from the islands north of South America.

P. R. UHLER (Boston Soc. Proc., p. 1), describes the new genus *Aulacostethus*, and places in it *Tetyra marmorata* Say.

F. WALKER (British Mus. Cat., pt. 1) describes *Phimodera torpida*, p. 75, from Saskatchewan; *Corimelæna cyaneonigra*, p. 78, Mexico; *Oplomus biarcuatus*, p. 121, Vera Cruz; *Platynopus conspersus*, p. 123, Orizaba, and notices *Augocoris Ehrenbergii*, *A. gigas*, *A. Gomesii* from Mexico; *A. pallidus*, *A. cretaceus*, Cuba; *Pachycoris Klugii*, *P. variabilis*, *P. Boscii*, *P. marginellus*, *P. luminosus*, *P. dissociatus*, *P. farcatus*, *P. guttipes*, *P. conicus*, *P. sticticus*, Mexico; *P. chrysorrhæus*, *P. guttatus*, Carolina; *P. nitens*, *P. obliquus*, *P. arcuatus*, *P. cassidioides*, *P. delineatus*, *P. pinguis*, W. Indies; *Homæmus exilis*, Nova Scotia; *H. parvulus*, Florida; *H. punctellus*, *H. proteus*, Mexico; *Symphylus irroratus*, *S. variegatus*, *S. Knochii*, W. Indies; *Agonosoma rubrocincta*, *A. flavocincta*, *A. Mexicana*, Mexico; *Zophæssa porosa*, *Z. mæsta*, *Z. socia*, California and Mexico; *Eurygaster alternatus*, N. America; *Podops dubius*, Florida; *Corimelæna nitiduloides*, *C. unicolor*, *C. nigra*, *C. pulicaria*, *C. lateralis*, *C. marginella*, United States; *C. Schulzii*, *C. signatipennis*, Mexico; *C. basalis*, W. Indies; *Megarix atratula*, *Stiretrus cæruleus*, *S. lythodes*, *S. ornatus*, *S. pulchellus*, *S. flavipes*, *S. atricapillus*, *S. crucifer*, Mexico; *S. violaceus*, *S. anchorago*, *S. fimbriatus*, United States; *Oplomus catena*, *O. nigripennis*, *O. pulcher*, *O. salamandra*, *O. dichrous*, *O. mundus*, *O. mutabilis*, *O. proteus*, *O. confluens*, *O. virgatus*, *O. circumcinctus*, *Platynopus rhodomelas*, Mexico.

PENTATOMIDÆ.

C. STAAL, l. c., gives diagnosis of *Chlorocoris depressus* Fab., p. 23, from Central America, also cites *Proxys victor* Fab., p. 25, W. Indies; *Berecynthus delirator* Fab., p. 26, W. Indies; *Euschistus crenator* Fab., p. 26, W. Indies; *Æbalus typhæus* Fab., p. 27, Carolina; *Cosmopepla carnifex* Fab., p. 28, North America; *Thyanta perditor* Fab., p. 29, W. Indies; *Nezara viridula* Linn., p. 31, W. Indies; *Edessa meditabunda* Fab., p. 37, W. Indies.

P. R. UHLER, l. c., describes *Podisus serieventris*, p. 2; *Brochymena Harrisii*, p. 3; *Euschistus fissilis*, p. 4; *Lioderma*, new genus, including *Pentatoma saucia* Say and *P. senilis* Say, p. 5; *Atomosira sordida*, new genus and sp., pp. 5 and 6, and refers *Trichopepla semivitta* Say, *Neot-*

tiglossa undata Say and *Rhaphigaster Pensylvanicus* Degeer, all from New England, to their appropriate genera.

F. WALKER, l. c., describes *Arma invaria*, p. 135, *A. monospila* and *A. colorata*, p. 136, from Mexico; *Cyrtomenus crassus*, p. 147, Vera Cruz; *Æthus subglaber*, p. 150, North America; *Æ. fusiformis*, *Æ. fortis*, *Æ. tenuis*, p. 151, Mexico; *Discocephala inobtrusa*, p. 183, Mexico; *Ochlerus guttipes*, p. 193; *Brochymena tenebrosa*, p. 231, both Mexico; *Loxa nigridens*, p. 241, Saint Domingo; *Euschistus fasciatus*, *E. lineatus*, p. 245, Mexico; *E. acuminatus*, *E. reductus*, p. 246, Saint Domingo; *Eysarcoris punctifer*, p. 274, California; *Hymenarcys vividicatus*, p. 283; *Pentatoma marginalis*, p. 288; *Strachia angularis*, p. 315, N. America; *S. placens*, p. 316, Saint Domingo; *Vulsirea transducta*, p. 352; *V. lativentris*, p. 353, Mexico; *Rhaphigaster imbutus*, p. 358, Vera Cruz; and *R. aggressor*, p. 359, W. Indies. He records the following from the localities here given: — *Mutyca phymatophora*, Mexico; *Arma grandis*, *A. spinosa*, *A. modesta*, *A. pallens*, North America; *A. fuscescens*, *A. didyma*, *A. pulchricornis*, *A. congrex*, *A. Delia*, *A. cole*, *A. Thetis*, Mexico; *Euthyrhynchus punicus*, *E. floridanus*, *Apatecticus halys*, *Tynacantha punctipennis*, Mexico; *Zicrona cuprea*, *Z. marginella*, from Hudson's Bay region; *Z. splendida*, California; *Cyrtomenus castaneus*, *C. mutabilis*, North America; *C. emarginatus*, Mexico; *Æthus bilineatus*, *Æ. rugifrons*, *Æ. femoralis*, North America; *Æ. margo*, *Æ. piceatus*, Mexico; *Æ. curvipes*, *Æ. insularis*, W. Indies; *Amnestus spinifrons*, New York; *Shirus ligatus*, N. America; *Discocephala notulata*, *D. clypeata*, Mexico; *Ochlerus cinctus*, *O. tartareus*, *Antiteuchus obscurus*, *A. luctuosus*, *Chlorocoris rufispinus*, *C. atrispinus*, Mexico; *Brochymena annulata*, *B. serrata*, *B. quadripustulata*, *B. Carolinensis*, United States; *B. lineolata*, *B. hædula*, Mexico; *Loxa flavicollis*, West Indies; *Euschistus crassus*, *E. inconspiculus*, *E. ictericus*, *E. punctipes*, *E. luridus*, *E. tristigma*, United States; *E. obscurus*, *E. bifibula*, *E. spurculus*, *E. biformis*, *E. strenuus*, *E. castus*, Mexico; *E. pallipes*, *E. crocipes*, West Indies; *Proxys victor*, *P. delirator*, *P. variolarius*, *P. crenatus*, Mexico and West Indies; *Mormidea pæcila*, *M. pyrrhocera*, United States; *M. collaris*, *M. notulata*, *M. irrorata*, *M. pictiventris*, *M. lugens*, *M. hamulata*, *M. angustata*, *M. verrucifera*, Mexico; *M. croceipes*, *M. cubrosa*, West Indies; *Ælia trilineata*, *Æ. Americana*, North America; *Eysarcoris conspicillaris*, *E. carnifex*, United States; *E. decoratus*, Mexico; *Hymenarcys nervosa*, *H. perpunctata*, *H. æruginosa*, North America; *Pentatoma picea*, *P. dubia*, *P. boxura*, *P. grisea*, *P. pilipes*, *P. lugens*, *P. custator*, *P. dentata*, *P. pallidovirens*, United States; *P. obsoleta*, Jamaica; *Strachia histrionica*, United States; *S. munda*, *S. splendida*, *S. principalis*, *S. melanopyga*, *S. rufo-notata*, Mexico; *S. violascens*, *S. perspicua*, *S. proxima*, W. Indies; *Vulsirea liturata*, *V. anchorago*, *V. variegata*, *V. nigrorubra*,

W. Indies; *Rhaphigaster prasinus*, *R. sarpinus*, *R. catinus*, *R. punctulatus*, N. America; *R. spirans*, *R. sticticus*, *R. marginatus*, *R. jurgiosus*, *R. nitidiventris*, Mexico; *R. sparnius*, *Arvelius albo-punctatus*, W. Indies; *Taurocerus edessoides*, *T. Achilles*, *T. Hector*, Mexico; *Acanthosoma cruciata*, *A. nebulosa*, North America.

COREIDÆ.

C. STAAL, l. c., cites *Archimerus calcarator* Fab., *Euthochtha galeator* Fab. from Carolina; *Leptoglossus albicinctus* Say, warm parts of America; *Spartocera fusca* Thunb., Guadeloupe; *Anasa scorbutica* Fab., W. Indies; *A. tristis* DeGeer., Carolina; *A. Uhleri* Staal, Mexico; *A. apicalis* Westw., Mexico; *A. armigera* Say, N. America; *Catorhintha guttula*, Fab., W. Indies; *Gerris filiformis* Fab., Cuba; *Harmostes serratus*, Fab., W. Indies; *Corizus lineata* Fab., *C. hyalinus* Fab., *C. sidæ* Fab., W. Indies.

P. R. UHLER, l. c., describes as new species, *Metapodius instabilis* and *M. confraternus*, p. 7, from North Carolina and Florida; and *Neides decurvatus*, p. 8, from New Hampshire.

F. WALKER; l. c., pt. IV, cites *Sephina maculata*, Jamaica; *S. vinula*, *S. limbata*, Mexico; *Spartocera dorsalis*, *S. fusca*, *S. gigas*, Mexico; *Mictoides*, new genus, same as *Sagotylus* Mayr, with the same species as employed by Dr. Mayr, viz: — *Mictis triguttatus* H. Schf. The specific name has however been set aside by the earlier appellation by Say; thus the correct name will now be *Sagotylus confluentus* Say, from Mexico; *M. ozena*, *M. spinicrus*, Mexico; *Metapodius femoratus*, *M. terminalis*, N. America; *M. constrictus*, W. Indies; *M. suratus*, *M. thoracicus*, *M. granulatus*, *M. luctuosus*, Mexico; *Pachylis gigas*, *P. Hector*, Mexico; *Melucha quadrivittata*, Mexico; *Archimerus calcarator*, *A. rubiginosus*, United States; *A. affinis*, *A. triangulum*, W. Indies; *A. lunatus*, *A. affinis*, *A. lineolatus*, *A. Nestor*, *A. scrupulosus*, *A. scutellaris*, Mexico; *Capaneus multispinus*, *C. Achilles*, *C. auriculatus*, *C. rubronotatus*, *C. vates*, *C. tetricus*, *C. odiosus*, *C. spurcus*, *C. ventralis*, Mexico; *Mamurius Mopsus*, Mexico; *Meropachys alternatus*, Mexico; *Flavius lineaticornis*, *F. pinguis*, *Nematopus lepidus*, Mexico; *Paryphes Whitei*, Cuba; *P. imperialis*, *Scamurius jurgiosus*, *Anasa scorbutica*, *A. Andresii*, *A. nigripes*, *A. bellator*, Mexico and W. Indies; *A. armigera*, *A. obliqua*, *Chariesterus antennator*, United States; *C. mæstus*, Mexico; *Hymenophora crucifer*, *H. lobatus*, W. Indies; *Euthochtha galeator*, *Corynocoris distinctus*, United States; *Sagotylus triguttatus*, Mexico (noticed above); *Diactor rufus*, *Anisoscelis scripta*, *A. minor*, *A. gonagra*, *A. lineosa*, *A. zonata*, Mexico; *A. albicincta*, *A. opposita*, *A. corcula*, United States; *Narnia femorata*, Mexico; *N. pallidicornis*, Texas; *Pthia lunata*, *P. picta*, *Cebrenis pulchella*, *Sphictyrtus pretiosus*, *Hypselonotus fulvus*, *H. interruptus*, *H. concinnus*, *H. lineatus*, *H. punc-*

tiventris, Mexico; *Jadera sanguinolenta*, W. Indies; *J. æola*, Mexico; *Alydus calcaratus*, *A. cruentus*, *A. pilosulus*, *A. ater*, *A. apicalis*, *A. curtulus*, United States; *A. notatipennis*, *Camptopus diversipes*, *C. pallens*, Mexico; *C. affinis*, *C. rufipes*, W. Indies; *Protenor Belfragii*, *Darmistatus subvittatus*, Mexico; *Leptocorisa filiformis*, *L. tipuloides*, *Lyrnessus tibialis*, W. Indies; *Neides spinosus*, *N. decurvatus*, *N. gracilipes*, United States; *Xiphares tabulatus*, Mexico; *Gonocerus affiliatus*, *G. tristis*, *G. obsoletus*, United States; *G. apicalis*, Mexico; and describes as new, *Sephina atra*, p. 4, *Spartocera lampyroides*, p. 6, *Archimerus acutiusculus*, and *A. indecorus*, p. 64, *A. guttiventris*, *A. maculifer*, p. 65, *A. dolosus*, p. 66, *Hirilcus collaris*, p. 73, from Mexico; *Anisoscelis selecta*, p. 127, St. Domingo; *A. præcipua*, *A. concolor*, p. 128, *Phia concinna*, p. 132, *Hypselonotus propinquus*, p. 142, *H. armatus*, p. 144, and *Gonocerus capaneodes* var. p. 186, from Mexico.

LYGÆIDÆ.

C. STAAL, l. c., cites *Lygæus aulicus* Fab., St. Barthelemy; *L. pulchellus* Fab., *L. collaris*, Fab., W. Indies; *L. turcicus* Fab., New York, and places the Fabrician species in several new subgenera.

P. R. UHLER, l. c., describes as new *Plociomerus diffusus*, p. 9, *Ozophora* new genus, *O. picturata*, p. 10; *Peritrichus fraternus*, p. 11 and *Belonochilus* new genus, from Massachusetts, and notes the synonymy of *Ptochiomera nodosa* Say, Alabama; *Plociomerus constrictus* Say, Mass.; and *Eremocoris ferus* Say, Mass.

TINGIDÆ.

C. STAAL, l. c., p. 95, notices *Tingis sacchari* Fab., from W. Indies, and *Galeata gossypii* Fab., W. Indies.

PYRRHOCORIDÆ.

C. STAAL, l. c., notices *Largus succinctus* Fab., Pennsylvania; *Dysdercus Andreæ* Linn. = *suturalis* Fab. West Indies. This species swarms on the cotton in Hayti, staining it red, and doing otherwise much mischief to the plant.

ANTHOCORIDÆ.

P. R. UHLER, l. c., p. 14, notes *Lytocoris domesticus* and *Triphleps insidiosus* and their synonymy, from North Carolina, etc.

REDUVIDÆ.

C. STAAL, l. c., p. 97, notes *Sinea multispinosa*, DeGeer, from N. America; *Milyas cinctus* Fab., N. America; *Apiomerus crassipes* Fab., Carolina; *Sirthenea carinata* Fab., Carolina; *Leogorris litura* Fab.,

Mexico; *Pnirontis languida*, *P. infirma*, Carolina; *Stenopoda culiciformis* Fab., Cuba.

P. R. UHLER, l. c., p. 14-15, notices *Pygolampis pectoralis* Say; *Emesa longipes* DeGeer, and *Ploiaria errabunda* Say, from New England, and gives their synonymy.

CAPSINI.

A. FITCH, l. c., p. 513 seq., describes the appearance of *Phytocoris lineatus* Fab., and notices its ravages upon dahlias and other flowers.

W. LEBARON, l. c., p. 61, gives some account of the habits of the species just noticed by Dr. Fitch, calling it *Capsus quadrivittatus* Say. This name is a synonyme of the above, and the species belongs to the modern genus *Lygus* Fieber.

C. V. RILEY, l. c., p. 137, notes the habits of *Campyloneura vitripennis* Say.

C. STAAL, l. c., p. 86, gives a diagnosis of *Capsus lineatus* Fab., and refers it to the genus *Calocoris*.

PHYMATIDÆ.

C. STAAL, l. c., p. 94, notices *Macrocephalus cimicoides*, *M. prehensilis*, from Carolina, and *Phymata marginata* Fab., with a diagnosis, from W. Indies.

ARADIDÆ.

P. R. UHLER, l. c., pp. 13 and 14, describes as new, *Aradus robustus*, *Aneurus inconstans*, and *A. simplex*, from New England.

SALDÆ.

P. R. UHLER, in Dr. Packard's paper, noticed above, reports *Salda interstitialis* Say, from Clear Lake, California.

HYDROESSÆ.

P. R. UHLER, l. c., p. 15, describes *Rhagovelia obesa*, new species, from the United States.

HYDROMETRIDÆ.

P. R. UHLER, in Dr. Packard's paper, describes as new *Hygrotrechus robustus*, from Clear Lake, California. And in l. c., he gives the characters of a new genus and species, *Metrobates hesperius*, p. 17, from the United States and W. Indies.

GALGULIDÆ.

C. STAAL, l. c., notes *Galgulus oculatus* Fab., from Carolina and Texas.

NOTONECTIDÆ.

C. STAAL, l. c., p. 137, redescribes *Anisops pallipes* Fab., from the W. Indies.

CORISÆ.

C. STAAL, l. c. p., 138, redescribes *Corixa nigripennis* Fab., from the W. Indies.

P. R. UHLER, in Dr. Packard's paper, describes *Corixa decolor*, from Clear Lake, California.

The interesting fact that the eggs of *Corixa* are used for food, by the Mexicans, is mentioned by Dr. Packard, quoted from Tylor's Anahuac, and from Virlet d' Aoust. Mr. Say, in his "Descriptions of the Heteroptera of North America," p. 39, says:—"Passing through the market in the city of Mexico, I obtained a few specimens (of *Corixa abdominalis* Say), from the quantity of at least a peck, exposed for sale by an Aztec woman."

(HOMOPTERA.)

CICADIDÆ.

C. V. RILEY, Third Report, remarks the injuries done to apple trees by *Cicada septendecim*, and its thirteen year brood.

C. STAAL, l. c., reports *Cicada tibicen* Linn. from South America. It ranges extensively over eastern North America, from New York southwardly.

APHIDÆ.

A. FITCH, l. c., describes *Aphis circezanidis* from New York, and remarks the habits of various *Aphids*.

C. V. RILEY, Third Report, assumes the identity of the North American *Phylloxera vitifoliæ* Fitch, with the European *P. vastatrix* Planchon, and gives a much detailed account of its nature and characteristics.

COCCIDÆ.

W. LEBARON, l. c., p. 24, seq., details the habits and appearance of *Mytilaspis conchiformis* Gmelin, from the Apple bark, and of *Mytilaspis pinifoliæ* Fitch, from the leaves of pine trees.

MEMBRACIDÆ.

C. STAAL, l. c., redescribes *Ceresa bubalus*, Fab., p. 24, from N.

America; *Cyrtosia mutica* Fab., p. 25, N. America; *Procyrta inermis* Fab., p. 33; describes as new, *Aconophora hastata*, Mexico, *A. nigra*, *A. Mexicana*, *A. gracilicornis*, *A. pallescens*, *A. femoralis*, *A. gladiata*, p. 35, Mexico, and notices *Platycotis vittata* Fab., p. 37, Carolina; *Campylenchia curvata* Fab., p. 43, N. America; describes *Tropidoscyta pallidipennis*, *T. cornutata*, Mexico, and *T. gibbera*, p. 46, Texas; notices *Monobelus fasciatus* Fab., p. 49, W. Indies; *Orthobelus Havanensis* Fairm, Cuba; and describes *Monobelus lateralis*, from Cuba.

JASSIDÆ.

T. GLOVER, Monthly Report Depart. Agricult., notes the habits of *Erythroneura vitis* Harris, and of another species, not mentioning its name.

C. STAAL, l. c., p. 59, cites *Xerophlœa viridis* Fab., from the W. Indies; *Aulacizes irrorata* Fab., Carolina, etc.

FULGORIDÆ.

C. STAAL, l. c., redescribes *Bothriocera undata* Fab. p. 93, from West Indies; *Pintalia variegata* Fab. p. 94, W. Indies; *Chlorochara vivida* Fab. p. 107, W. Indies; *Ormenis relicta* Fab., p. 111, Carolina; *Petrusa marginata* Linn., p. 111, W. Indies, and *P. pygmœa*, Fab., p. 112, from island of St. Barthelemy.

ORTHOPTERA.

C. THOMAS (U. S. Geol. Surv. Wyoming, 1871. 265-284).
A List and Description of new species of Orthoptera.

This paper is chiefly a copy of the one published in Proc. Acad. Nat. Sci., Phila., 1870. The descriptions of some new species, and somewhat copious notes on *Caloptenus spretus* are added. The additions only are noticed here.

C. THOMAS (Proc. Acad. Nat. Sci., Phila., 1871. 149-153).
Contributions to Orthopterology.

C. THOMAS (Can. Ent., III, 168). On a new Grasshopper from Colorado.

H. DE SAUSSURE. Mémoires pour servir a l'Histoire naturelle du Mexique des Antilles et des États-Unis, IVme Mémoire. Mantides Américains, Tome IIme; Prém. Partie. 4to.

H. DE SAUSSURE (Mélanges Orthopterologiques 1869) describes several Central American species of Blattariæ and Mantides, with many rectifications of synonymy, referring often to American species.

F. MEINERT (Naturhistoriske Tidsskrift, Copenhagen, Bd. V. 1870.) describes a new Labidura.

F. WALKER. Catalogue of the Specimens of Blattariæ in the Collection of the British Museum. 8vo. pp. 239, 1870-1, with Supplement.

F. WALKER. Catalogue of the Specimens of Dermaptera Saltatoria in the Collection of the British Museum. 8vo, parts 1-3, 1870.

GRYLLIDÆ.

F. WALKER (Cat. Dermap. Saltatoria, 1870) describes as new *Gryllus septentrionalis*, Mex., St. Domingo, West Coast America, *G. luridus*, Vera Cruz, *G. determinatus*, West Indies, *G. parilis*, St. Vincent, Brazil, *G. similis*, St. Domingo, *G. angustulus*, *G. contingens*, West Indies, *G. signatipes*, West Coast America, *Tafalisca* (n. gen.) *lurida*, St. Domingo, *Nemobius Mexicanus*, Oajaca, *Orocharis signatus*, Orizaba, *O. scitulus*, *O. fusiformis*, Honduras, *Eneoptera insularis*, *Phyllopalpus latipennis*, Jamaica, *P. nigrovarius*, Mexico, *Lebussa* (n. gen.) *tenuicornis*, *L. similis*, St. Domingo, *Zaora cinctipes*, Jamaica, *Æcanthus nigricornis*, Illinois, *Æ. varicornis*, *Æ. formosus*, Mexico, *Laurepa* (n. gen.) *valida*, Jamaica.

LOCUSTARIÆ.

F. WALKER (Cat. Dermap. Saltatoria, 1870) describes as new *Stenopelmatus politus*, Orizaba, *S. erythromelas*, *S. lycosoides*, Mexico, *S. cephalotes*, West Coast America, *Ceuthophilus zonarius*, Vancouver's Is., *Licodia* (n. gen.) *pallipes*, St. Domingo, *Neduba* (n. gen.) *carinata*, California, *Marsa* (n. gen.) *arcuata*, Saskatchewan, *Decticus sphagnum*, Hudson's Bay, *Insara* (n. gen.) *strigulata*, Mexico, *Moucheca* (n. gen.) *pretiosa*, Honduras and Mex., *Conocephalus contingens*, Mex., *C. ascendens*, Jamaica, *C. bilineatus*, St. Domingo, *C. viridator*, Honduras, *Sagona* (n. gen.) *subpunctata*, Honduras, *Monocentrum supremum*, Mex., *M. excellens*, *M. subæquale*, *M. decoratum*, St. Domingo, *M. divisum*, Jamaica, *Orophus notatus*, Oajaca, *O. ringens*, Jamaica, *O. decisus*, Honduras, *Pseudophyllanax* (n. gen.) *insularis*, Isle of Pines, *Meroncidius subguttatus*, Jamaica, *M. circumdatus*, *M. tenebrosus*, Oajaca, *M. discoidalis*, *M. subnotatus*, Jamaica, *M. indistinctus*, Mexico or Brazil, *M. immunis*, *Gryllacris longiuscula*, Isle of Pines, *G.?* *parvulus*, St. Domingo, *Phylloptera subnotata*, Oajaca.

ACRIDIDÆ.

C. THOMAS (U. S. Geol. Surv., Wyo., 269-281) describes a new genus *Acrolophitus*, in which he places *Gryllus hirtipes* Say; also the following new species, *Stenobothrus obionus*, *St. brunneus*, and *St. quadrimaculatus*.

C. THOMAS (Proc. Acad. Nat. Sci., Phila., 1871, 149-153) describes *Caloptenus differentialis* (= *Acridium differentiale* Uhler), *Opomola* (*Opomala*) *brachyptera* (female), and *Mesops Wyomingensis* (sp. nov.)

C. THOMAS (Can. Ent. III, 168) describes as new *Caloptenus Dodgei* from Pike's Peak, Col. Terr.

F. WALKER (Cat. Dermap. Saltatoria, 1870) describes as new *Mesops? carinatus*, United States, *Xiphocera inclavata*, Orizaba, *Rhomalea picticornis*, *M. auricornis* Mexico, *Cyrtacanthus inscripta*, Jamaica, *C. pectoralis*, *C. impleta*, *C. septentrionalis*, West Coast America, *Acrydium piceifrons*, Orizaba, *A. vitticeps* Oajaca, *A. scutellare*, Mexico, *A. vicarium* Orizaba, *A. strenuum*, Oajaca, *A. varipes*, St. Domingo, *A. tibiale*, West Coast America, *A. luridescens*, Honduras.

MANTIDES.

H. DE SAUSSURE (Mél. Orth., 1869) describes as new *Gonatista Cubensis*, Cuba; *Acontista Cordilleræ*, *Stagmomantis Nahua*, Mexico; *Thespis Cubensis*, Cuba; *Oligonyx bicornis*, Mex. In the same, 1870, 239, *O. Scudderi*, N. America.

H. DE SAUSSURE (Mém. Mantides Amer.) redescribes with many notes and family and generic characters, our American species of this family. He gives descriptions of the following new species (some previously noticed in abstract in Bulletin Ent. Suisse, iii, 1869, which we have not seen) *Acontista Cordilleræ* from Mexico; *A. multicolor*, Gaudeloupe; *Stagmomantis Nahua*, Orizaba, Cordova, S. Carolina and a Mexican var.; *Phasmomantis Sumichrasti*, Cordova and Orizaba; *Amelis Mexicana*, Michoacan, Mex.; *Iris Antillarum*, St. Thomas, St. Domingo; *Oligonyx* (n. gen.) *bicornis*, Alvarado, Isthmus of Tehauntepec; *Thespis* (n. gen.) *Cubensis*, Cuba; *Pseudacanthops* (n. gen.) *cælebs*, Mex.; *Vates pectinata*, Mexico?; *V. Tolteca*, Mex.

The following species are referred to new genera proposed by the author in this, or works published since 1868: *M. grisea* Fabr. and *M. ornata* Stoll, to *Gonatista*; *M. Carolina* Linn., *M. dimidiata* Burm., *M. Domingensis* Beauv. and *M. latipennis*, Burm., to *Stagmomantis*.

BLATTARIÆ.

H. DE SAUSSURE (Mélanges orthopterologiques, 1869) describes as new *Theganopteryx fallax*, Mexico?, *Anaplecta otomia*, Mexico.

F. WALKER (Cat. Blatt., 1870) describes as new *Blabera quadrifera*,

Mexico, *B. subspurcata*, St. Domingo and Brazil, *Libisoca* (n. g.) *æqualis*, St. Domingo, *Lisapona* (n. g.) *marginalis*, Honduras, *Panchlora tripartita*, Orizaba, *Proscatea? illepeda*, St. Domingo, *Zetobora sigillata*, Honduras, *Euthyrrapha mordelloides*, Orizaba, *Epilampra sabulosa*, *E. microspila*, St. Domingo, *Blatta latimargo*, Hong Kong and Honduras, *B. insularis*, *B. reticulosa*, Jamaica, *B. incisa*, St. Domingo and Mauritius? *Ischnoptera vacillans*, St. Domingo, *I. nigricollis*, Georgia, *I. terminalis*, Jamaica, *Periplaneta repanda*, Honduras, St. Domingo, Philippines, Ceram, *P. subcincta*, Oajaca, *P. inclusa*, St. Domingo and New Hebrides, *P. floridana*, N. Americana, *P. semipicta*, Florida, *Nyctibora stygia*, St. Domingo and Honduras, *Polyzosteria panesthoides*, Jamaica, *Perisphæria deterosa*, Jamaica. In supplement, *Zetobora guttipennis*, South Mexico.

A. S. PACKARD, JR. (Amer. Nat., iv, 1870, 620). The Caudal Styles of Insects Sense Organs, *i. e.*, abdominal Antennæ. The sense organs in the short anal stylets of *Periplaneta Americana* are briefly described and supposed to be organs of smell. Similar organs are described in the palpi of *Chrysopila*, a dipter, and also supposed to be smelling organs.

FORFICULARIÆ.

F. MEINERT (Nat. Tids., v, 1870) describes on p. 279 as new *Labidura advena* from Jamaica.

NEUROPTERA.

A. S. PACKARD, JR. (Amer. Naturalist, v, 91) Bristle Tails and Spring Tails. In this paper is given a general account of the Thysanura, with a description of the mouth-parts of an undescribed *Lepisma*. Packard thinks that the *Lepismidæ* and *Campodeæ* do not "diverge from the Neuropterous type any more than the Mallophaga, or biting lice, do from the type of Hemiptera." He considers *Campodea* as affording a passage from the winged Neuroptera to the Poduridæ. A description of the mouth-parts of *Tomocerus plumbeus* is given, with woodcuts, and also of an organ overlooked by previous observers which he is disposed to consider as in part representing the ovipositor of other insects. He regards the "Lipuridæ" as a subdivision of Poduridæ rather than a distinct family.

A. S. PACKARD, Jr. (Proceedings Bost. Soc. Nat. Hist., xiii, 405). New or rare American Neuroptera, etc.

A. S. PACKARD, Jr. (1st Ann. Rep. Injurious and Beneficial Insects, Mass.). Contains notices and figures of two Libellulid larvæ.

A. S. PACKARD, Jr. (Amer. Nat., v, 564). The Embryology of *Chrysopa*, and its Bearings on the Classification of the Neuroptera. In this paper the author divides the larvæ of insects into two general forms, the leptiform and eruciform. The leptiform have a flattened or oval body, with large thoracic legs, such as the larvæ of the mites and most Neuroptera, Orthoptera, Hemiptera, and many Coleoptera; while the eruciform have long cylindrical fleshy bodies, as the larvæ of the Diptera, Lepidoptera and Hymenoptera. "The larvæ of the earliest Insects were probably leptiform, and the eruciform condition is consequently an acquired one, as suggested by Fritz Müller."

A. S. PACKARD, Jr. (Memoirs of Peabody Acad. Science) Embryological Studies on *Diplax*, *Perithemis*, and the Thysanurous genus *Isotoma*. The embryology of *Diplax* and *Perithemis*, is said to agree with that of *Calopteryx* and *Agrion* as described by Brandt. The embryology of *Isotoma* agrees in all important particulars with that of other insects, and especially the *Phryganeidæ* as described by Zaddach. A period late in embryonic life is described when the epicranium, clypeus and labrum, and mouth parts are much as in the embryo of *Mystacides*. "From this time begins the process of degradation, when the insect assumes its Thysanurous characters, which consist in an approach to the form of the myriapodous head." Packard states that the "spring" is "homologous with the third pair of blades in the unjointed ovipositor of the higher insects, and seems to be homologous with the legs and cephalic appendages."

A. S. PACKARD, Jr. (Amer. Nat., V, 707) The Position of the Caddis Flies. A Review of McLachlan's views on the same subject. They are considered as a family of Neuroptera (in the Linnæan sense).

F. BRAUER (Verh. Zool. Bot. Gesellsch. Wien). Ueber zwei neue von Prof. D. Bilimek in Mexico entdeckte Insekten. He describes a new *Phryganid* and *Agrionid*.

PSOCIDÆ.

A. S. PACKARD, JR. (Proc. Bost. Soc. Nat. Hist., xiii, 405) describes as new *Amphientomum Hagenii*, from Maine and Mass.

LIBELLULIDÆ.

F. BRAUER (Verh. Zool. Bot. Gesellsch. Wien) describes as new from Mexico *Xiphocentron Bilimekii*.

A. S. PACKARD, JR. (1st Ann. Rep. Inj. and Ben. Insects, 30) describes and figures the larva of *Cordulia lateralis* Burm., identified by Dr. Hagen, and of Didymops?

HEMEROBIIDÆ.

A. S. PACKARD, JR. (Proc. Bost. Soc. N. H., xiii, 407) notices the occurrence of *Psectra dipterus* Burm., at Brunswick, Maine, not before detected in America.

A. S. PACKARD, JR. (Amer. Nat., v, 564) in a paper on the Embryology of Chrysopa, and its bearings on the classification of the Neuroptera, gives a sketch of the embryology of Chrysopa, which in its latter stages is identical with that of the Libellulidæ.

PHRYGANEIDÆ.

F. BRAUER (Verh. Zool. Bot., Gesellsch. Wien) describes as new from Mexico *Paraphlebia hyalina*.

PANORPIDÆ.

A. S. PACKARD, JR. (Proc. Bost. Soc. N. H., xiii, 408) describes as new *Boreus Californicus* from Siskiyou Co., Cal.

CAMPODEÆ.

A. S. PACKARD, JR. (Proc. Bost. Soc. N. H., xiii, 409) describes as new *Campodea Americana* from Salem, Mass., and in the American Naturalist, v. 747, C. COOKEI from Mammoth Cave.

ARACHNIDA.

BELLEROYE (Bulletin de la Société d'Histoire naturelle du département de la Moselle, Metz, 1870), gives a description of *Mygale Mexicana* n. sp., from Mexico.

C. S. MINOT (Proc. Bost. Soc. Nat. Hist., page 20), Notice

of *Mygale Hentzii* Gir., and *Pompilus formosus*, which preys on it.

A. AUSSERER (Verhandlungen der Zoologisch Botanisch Gesellschaft in Wien, 1871, Vol. xxi, page 117). Beiträge zur der Territelariæ. This articles contains descriptions of the following North American species: *Atypus niger* Hentz, Massachusetts; *Antrodicætus unicolor* = *Mygale unicolor* Hentz, Alabama; *Closterochilus gracilis* = *Mygale gracilis* Hentz, *Therogretes Walckenaeri*, North America; *Madognatha Abbotii* Walck, N. America; *Charizops loricatus* = *Actinops loricatus* Koch, Mexico; *Cyclosmia truncata* = *Mygale truncata* Hentz, Alabama; *Pachylomerus solstitialis* = *Mygale solstitialis* Hentz, Alabama; *Diplura macrura* Koch, West Indies; *Crypsidromus innocuus*, Havana; *Euryplema mordax* Texas; *E. Californica* Dol., California; *E. leiogaster* Dol., California; *E. spinicras*, Cuba.

E. D. COPE (Ann. Mag. Nat. Hist., 4th S., Vol. 8, p. 368) in an article on "Life in the Wyandotte Cave" mentions an *Aranea*-like and an *Opilio*-like spider as found in the cave.

JOHN BLACKWALL (Ann. Mag. Nat. Hist., 4th S., Vol. 8, No. 48, Dic. 1871, pp. 429-436), Notice of spiders captured by Miss Hunter in Montreal, Upper Canada, with descriptions of species supposed to be new to Arachnologists. He describes as new *Lycosa Canadensis*, *Philodromus obscurus*, *Drassus Humteræ*, *D. diversus*, and *Ergatis diligens*. He also mentions *Drassus vasifer* Walck., *Theridion tepidariorum* C. Koch, *Epeïra servicata* C. Koch, and *E. cucurbitina* Walck.

J. H. EMERTON (Amer. Nat. Vol. 5, p. 148) gives an account of "Flying Spiders," with a figure.

A. S. PACKARD, JR. (Amer. Nat. Vol. 5, p. 47), gives an account of the spiders thus far found in the Mammoth Cave, with figures. They are *Anthrobia mammothia* Tellkf., and *Acanthocheir armata* Lucas (*Phalangodes armata* Tellkf.)

ACARINA.

A. S. PACKARD, JR. (Amer. Jour. Sci., 1, Feb., 107). On Insects inhabiting Salt Water. Descriptions are given of *Thalassarachna* (n. gen.) *Verrillii* (with figures) dredged in twenty fathoms at Eastport, Maine; and *Hydrachna tricolor*, New Haven, Conn.

MYRIOPODA.

A. S. PACKARD, JR. (Ann. Mag. Nat. Hist., 4th S., Vol. 7, p. 72), gives a note on a remarkable Myriopod, *Pauropus Lubbockii* nov. sp. from Salem, Mass. (Copied from Amer. Nat. Dec. 1870). See also for a fuller description Proc. Bost. Soc. Nat. Hist., xiii, 1871, 409.

In the American Naturalist (1871, iv, 736) he publishes a note on "The Ancestry of Insects" in which he suggests that the Myriopods, Arachnids and Hexapods have descended from a Leptiform insect. He does not regard the insects as having been evolved either from a zoëa or nauplius form, and refers the ancestry of both classes (the Insecta and Crustacea) independently of each other to the worms.

A. HUMBERT ET H. DE SAUSSURE (Verh. Zool. Bot. Gesellsch. Wien, xix, 1869. 669-692.) Description de divers Myriapodes du Musée de Vienne. Ser. 1. Comprenant la famille des Polydesmides.

A. HUMBERT ET H. DE SAUSSURE (Revue et Mag. de Zoologie, 1869, 149-159) Myriapoda nova Americana.

E. D. COPE (Ann. Mag. Nat. Hist., 4th S., Vol. 8, p. 368) in an article on "Life in the Wyandotte Cave," mentions a species of *Pseudotremia* as found in the cave.

A. S. PACKARD, JR. (Amer. Nat., Vol. 5, p. 748), describes and figures *Spirostrephon Copei* nov. sp. from the Mammoth Cave. The species is blind. Mention is also made of other species found in caves, and the validity of the genus *Pseudotremia* is questioned.

CHILOPODA.

HUMBERT ET SAUSSURE (Rev. et. Mag. Zool. 1869) describe as new *Lithobius Aztecus*, *L. Mystecus*, and *L. Toltecus*, *Scolopendra Olmeca*, *S. mystica*, *S. Sumichrasti*, *Scolopocryptops Mexicana*, *Newportia Azteca*, *Geophilus Aztecus* and *Arthronomalus Toltecus* from Mexico.

POLYDESMIDÆ.

HUMBERT ET SAUSSURE (Verh. Zool. Bot. Gesellsch. Wien. 1869) describe as new *Sphæriodesmus gracilis*, *Polydesmus* (Fontaria) *simil-*

limus, *P.* (F.) *Mystecus*, *P.* (F.) *Acolhuus*, *P.* (F.) *Zendalus*, *P.* (F.) *Nahuus*, Mexico, *P.* (Oxyurus) *Couloni*, Cuba, *P.* (O.) *Sumichrasti*, *P.* (O.) *Orizabæ*, *P.* (O.) *intermedius*, *P.* (*Tropisoma*) *coccineus*, *P.* (*Rachidomorpha*) *uncinatus*, and *P.* (*Scytonotus*) *Woodianus*, *Platydesmus Mexicanus*, Mexico.

JULIDÆ.

HUMBERT ET SAUSSURE (Rev. et Mag. Zool. 1869) describe as new *Parajulus* (n. gen.) *Olmecus*, *Craspedosoma Mexicanum*, *Spirobolus Nahuus*, and *S. heteropygus*, Mexico.

SIPHONOPHORIDÆ.

HUMBERT ET SAUSSURE (Rev. et Mag. Zool. 1869) describe as new *Siphonophora Mexicana* from Mexico.

